

AUGUST 17, 1959

PURCHASING

The Methods and News Magazine for Industrial Buyers

a new
LOOK
at

P.A. and Top Management

.... page 70

Visits to Suppliers

.... page 72

Buying Foreign Goods

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Vendor Liability Insurance

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Keeping Salesmen Happy

.... page 79

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**Wherever your hydraulic machinery goes —
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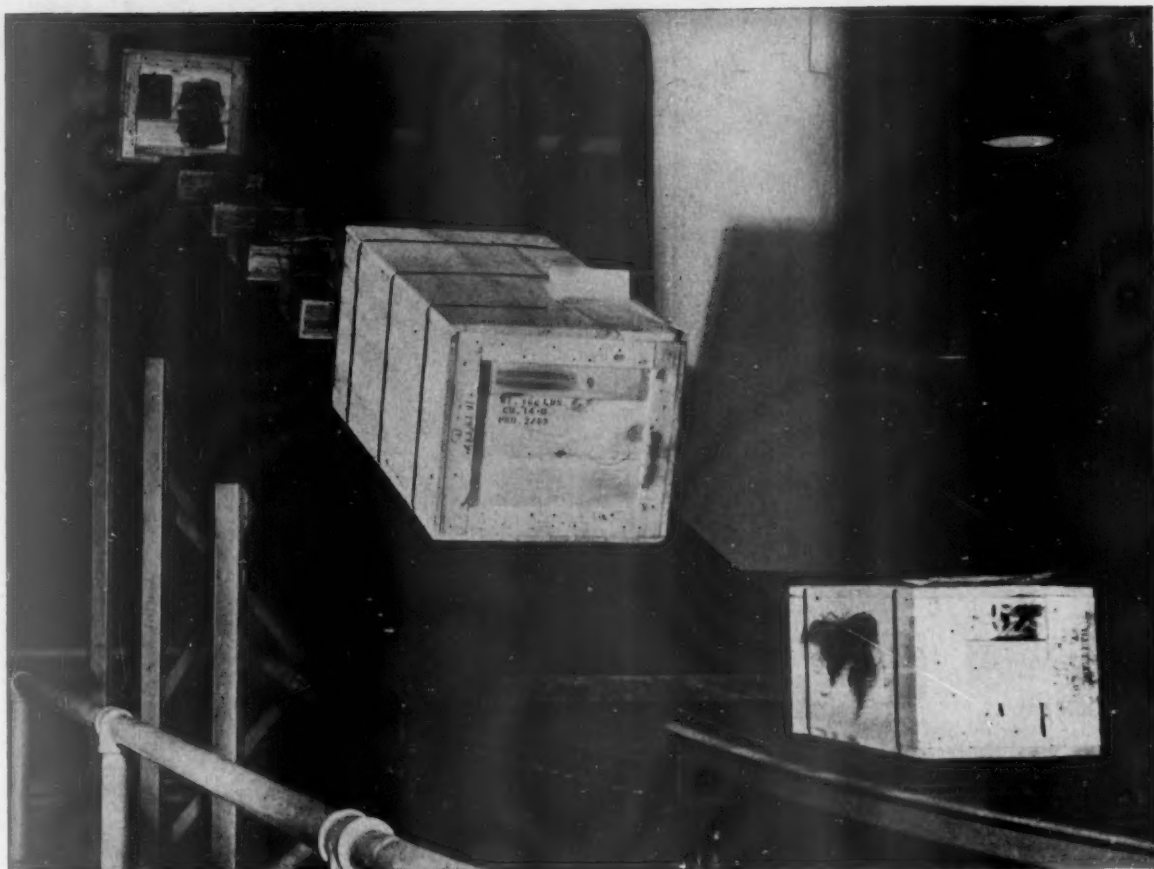
tures include . . . coils insulated with tough polyvinyl acetal resin . . . windings dipped and baked with several coats of high temperature synthetic varnish which protect against oil fumes, mild acids, dust and grit . . . rotors dynamically balanced so motors run smoothly and quietly . . . rugged cast iron frame for long life and low noise level. Century part-winding start motors are available in 20 to 150 hp sizes and in speeds of 1200 and 1800 rpm.

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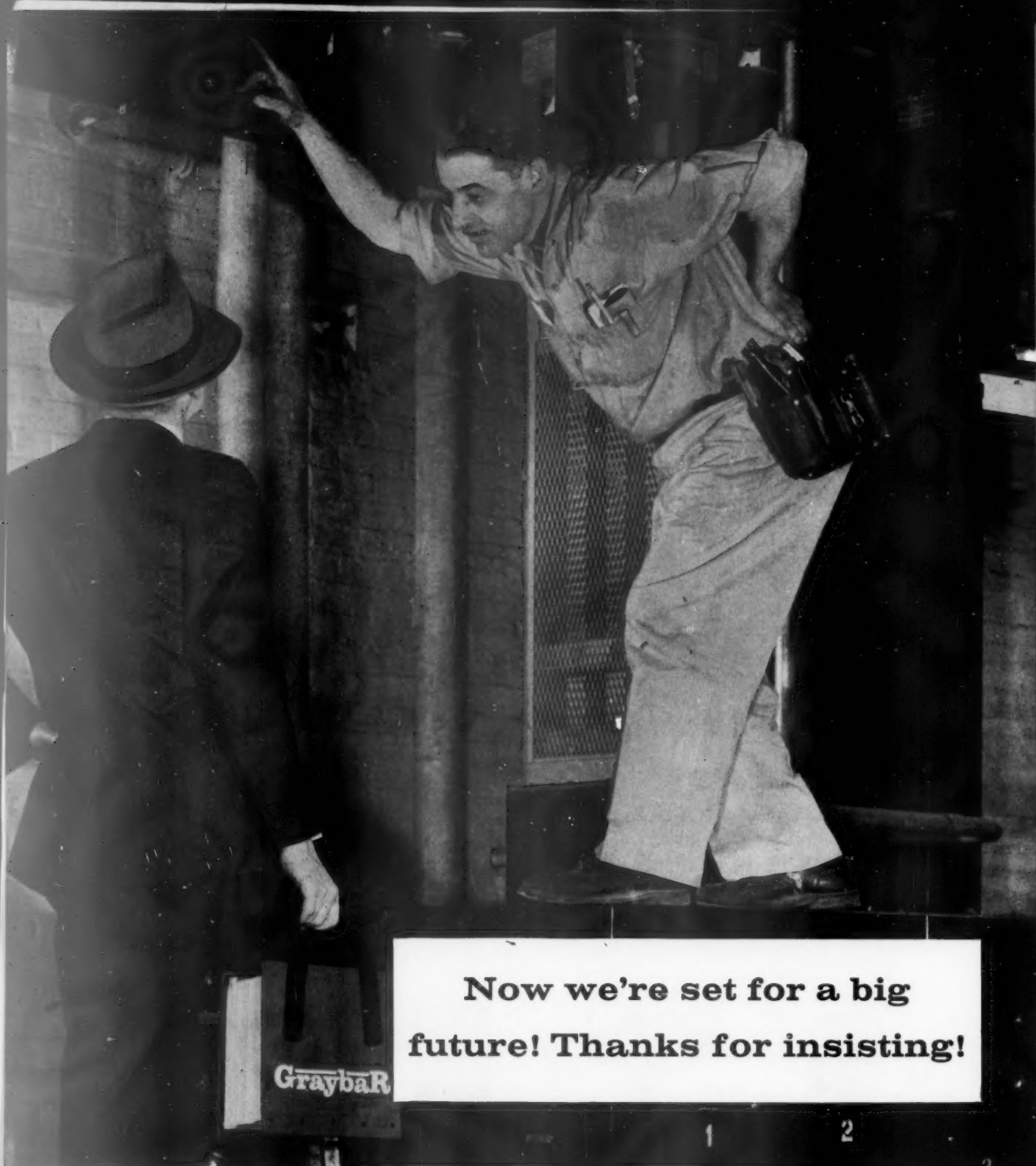
In Canada: Distributed by Chicago Rawhide Mfg. Co. of Canada, Ltd., Brantford, Ont.

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AUGUST 17, 1959





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PURCHASING

The Methods and News Magazine For Industrial Buyers

AUGUST 17, 1959
VOLUME 47, No. 4

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205 East 42nd Street, New York 17, New York
© 1959 by C-M Business Publications, Inc. PURCHASING is an independent journal, not the official organ of any association. Established 1915 as "The Purchasing Agent." Consolidated with "The Executive Purchaser." Contents are indexed monthly and annually by the Engineering Index Service and Business Periodicals Index.
PURCHASING is published every-other-Monday by C-M Business Publications, Inc., subsidiary of Conover-Mast Publications, Inc., at 440 Post Road, Orange, Conn. Editorial and executive offices, 205 East 42nd Street, New York 17, New York. Volume 47, No. 4. Subscription rates: United States, U. S. Possessions and Canada: \$4.00 per year; single copies 75 cents; elsewhere, \$20.00 per year; single copies, \$1.00. Second-class postage paid at Orange, Conn. and at additional mailing offices.

SUBSCRIPTION CORRESPONDENCE AND CHANGE OF ADDRESS: Write to Circulation Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, N. Y. Please give title and company affiliation in all correspondence. Notify us promptly of any change of address. Be sure to give old as well as new address; include postal zone number, and new company name and title. Enclose address label from a recent issue, if possible. Since mailing labels are addressed in advance, please allow 3 weeks for change to become effective.

COL. A.E.R. PETERKA, *Manager of Aircraft Sales, Lamson & Sessions, tells why...*

"Flying fasteners" keep our sights high

AT Lamson & Sessions, we're producing many types of special "astronautics fasteners"—for use in aircraft, engines, missiles, space satellites. This fact has important meaning to you, as a fastener buyer, whether or not you use these high-precision specialties. Here's why:

Engineering, inspection procedures, precision equipment at Lamson are geared to meet strict military and aircraft specifications, where required. Since we're set up this way, many of the same procedures and quality controls are applied to our production of commercial fasteners. This means you can expect, and get, superior quality and precision from Lamson.

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Take advantage of the specialized engineering know-how and high quality standards available through Lamson...wherever you need fasteners for critical assemblies.

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helps you "tighten up" on...*

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- INSPECTION AND HANDLING COSTS
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Pulse of Business

Purchasing Agents Were Prepared

What's the state of the economy one month after the beginning of the steel strike?

Basically it's sound. Many purchasing agents—who naturally were aware of the strike threat for many months—built up their steel inventories to cover a strike of 30 to 60 days. Steel warehouses had another 3.7 million tons on hand July 15, according to a report by the American Steel Warehouse Association.

So the big question now is how long before these stocks are worked off? Some—like the railroads, mining, and shipping—have already felt the pinch. Around 80,000 men have been laid off in these and other steel-dependent industries, in addition to the 500,000 steelworkers idled by the strike.

One indication of the strike's early effects: iron shipments on the Great Lakes were down sharply last month compared with a year ago. While roughly 6.5 million tons were shipped in July '59, over 9 million tons were delivered in July '58 when the recovery was starting to pick up steam.

However, the over-all economy is still moving along strongly without much curtailment. If the strike is settled within the next month or so as many P.A.'s believe (see p. 13), business will continue to gain. Otherwise, the economic pace of the nation will be slowed considerably.

Here's how some economic barometers stand:

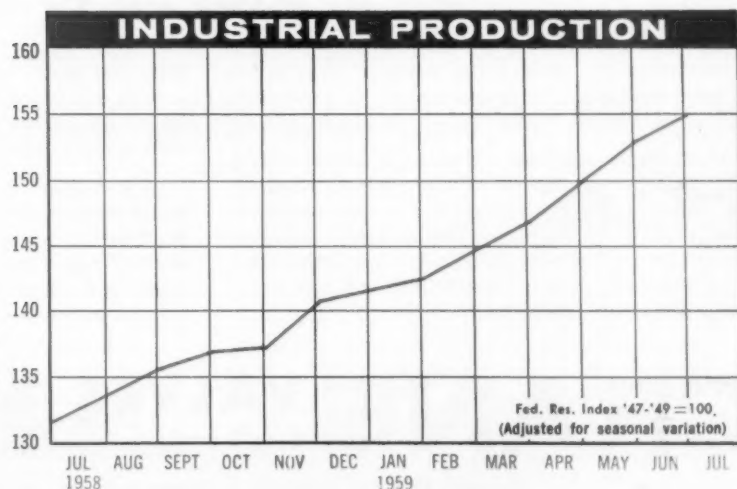
Gross National Product—Government officials are predicting that the GNP will climb above \$480 billion this year—if the strike doesn't produce a major slowdown. Earlier, the official estimate had been \$475 billion. Compare this revised figure with the 1958 GNP of \$441.7 billion and you'll see how far we've come since the recession.

The President's Council of Economic Advisers estimates that the annual rate during the second quarter was \$483.5 billion. This marked a substantial rise in this measure of goods performed and services rendered of over \$13 billion from the first quarter.

(turn page)

The Federal Reserve Board's Industrial Production Index rose three points in June to 155. The index is now 17% greater than a year earlier.

For More Information Write No. 158
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Long engagement with yoke sleeve keeps stem in perfect alignment.

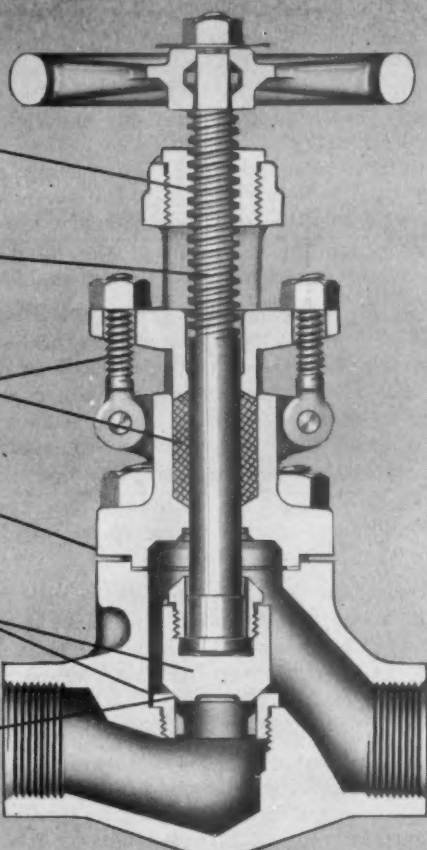
Husky Monel stem—permits high seating force without deflection. Acme threaded.

Teflon packing in extra-deep stuffing box. ... Swinging gland eye bolts for easy servicing.

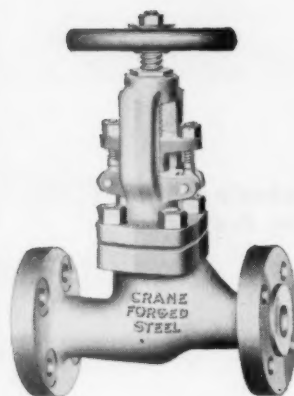
Monel gasketed male-female bonnet joint with heavy bolting. Leakproof; blowproof.

Highly corrosion-resistant Hastelloy "C" disc and body seat.

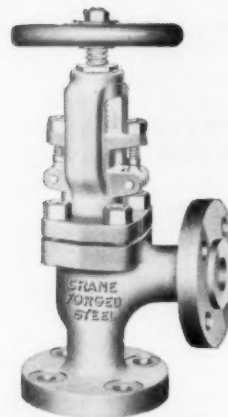
Narrow-bearing, tapered seating faces break down hard deposits ... give tight closure.



Screwed end valves—globe and angle patterns—in sizes ½ to 2 in. incl.



Flanged end globe valve—in sizes ½ to 6 in. incl.



Flanged end angle valve—in sizes ½ to 2 in. incl.

NEW! Crane chlorine valves now in sizes up to 6 in.

Performance-proved over many years in sizes up to 2 in., these *engineered-for-chlorine* valves are now available in larger sizes with flanged ends—2½, 3, 4 and 6 in.

Many features put these valves head and shoulders above any other for gas or liquid chlorine handling. There's extra strength where needed in the steel body and integral bonnet and yoke. The bonnet joint is gasketed with Monel and heavily bolted; it's leakproof and blowproof. A deep stuffing box with Teflon V-ring packing insures long-life stem seal.

Disc and body seat ring are Hastelloy "C" for tight seating with high corrosion resistance. Narrow-bearing, 45-degree taper seating design and the husky Monel stem easily break down any hard deposits on seat faces.

Choose these valves for all water-free chlorine gas or liquid services up to 300 F. They're ideal for chlorinating lines in chemical processing and bleaching, treatment of water and sewage, etc. Get complete specifications from your Crane Representative or write to address below.

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Pulse of Business

Among the components on the "plus" side last quarter were consumer spending, up \$7.6 billion annually over the first quarter; inventories, up \$3 billion; investment in production equipment, up almost \$2 billion; and federal, state, and local purchases, up over \$400 million. Net foreign trade is the only GNP component that is not rising. It dropped another \$500 million recently; currently our imports exceed non-military exports by \$1.4 billion annually.

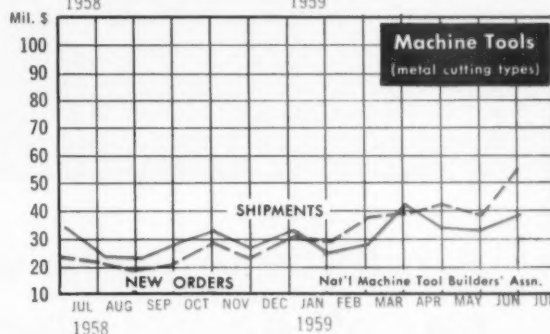
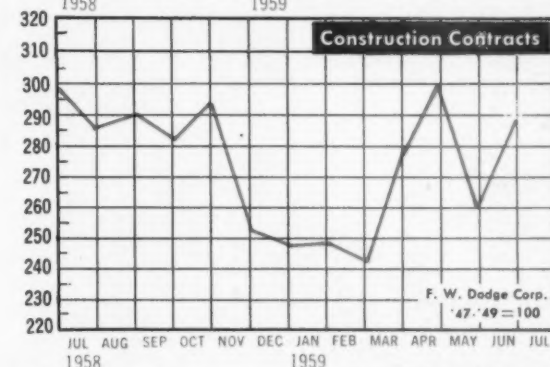
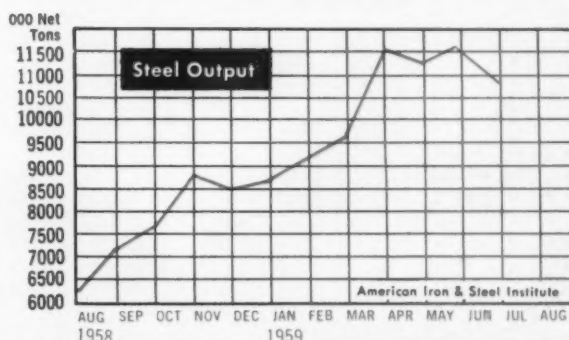
Automobile Production—About 555,000 cars were turned off the assembly lines last month. This was an increase of around 75% over the year-ago month—setting the highest July production figure since 1955.

Output in August and September will undoubtedly be much lower because of model changeovers. In fact, Chevrolet and Ford are the only makes in quantity production this month. P.A.'s for the auto companies had long anticipated a strike and therefore laid in large tonnages of steel for their 1960 models before the July 15 deadline.

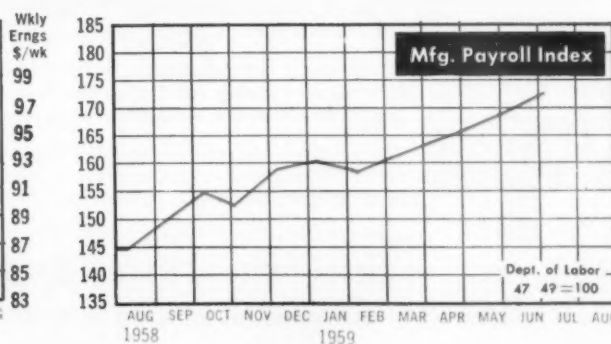
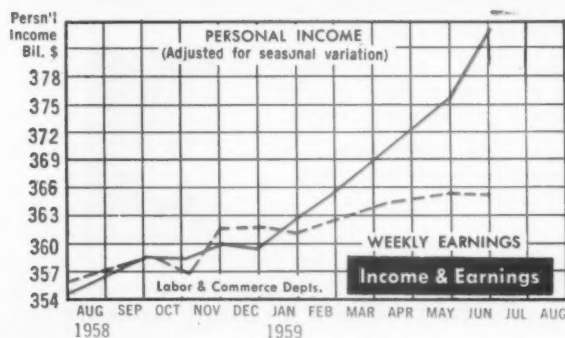
Construction—Construction contracts for the first half set a new record, according to F. W. Dodge Corporation. Large increases in both residential and non-residential building offset declines in heavy engineering. Industrial construction was quite strong, despite a drop in government-sponsored projects.

The Dodge index of construction contracts is also on the rise again. After reaching a peak of 299 in April—the previous high point had been in June 1958—it fell to 259 the following month. But the latest index advanced to 288, led by an 89% gain in plant construction over the same month last year. (turn page)

PRODUCTION



LABOR





Photograph courtesy Ohio Seamless Tube Division of Copperweld Steel Company

Aristoloy uniform quality steel bars pay off on hot piercing operations

Few manufacturing operations match piercing of tube rounds as a severe test of quality. Rapid displacement of metal and immediate increase in temperature reveal internal defects... magnify the slightest surface imperfections.

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For complete information about Aristoloy blooms, slabs, billets and bars, in carbon, alloy, stainless and leaded, call Copperweld in your nearest large city, or write for NEW PRODUCTS & FACILITIES CATALOG.



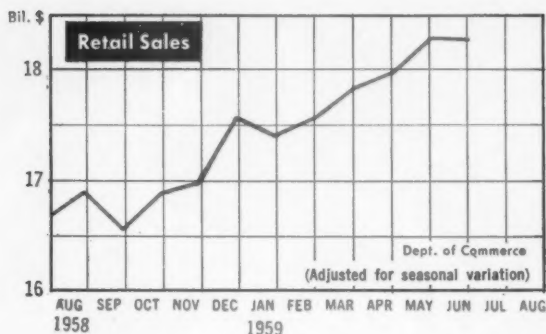
COPPERWELD STEEL COMPANY

ARISTOLOY STEEL DIVISION • 4029 Mahoning Ave., Warren, Ohio • EXPORT: Copperweld Steel International Co., 225 Broadway, New York 7, N. Y.

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Pulse of Business

TRADE



Imports and Exports—For the first time since 1950, monthly imports in June topped non-military exports. Imports rose 8% from the previous month to \$1.36 billion, a record high; exports fell slightly to \$1.33 billion.

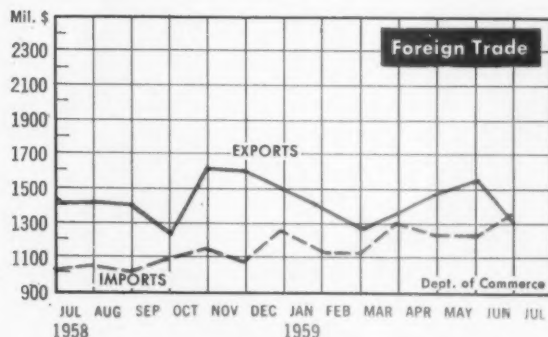
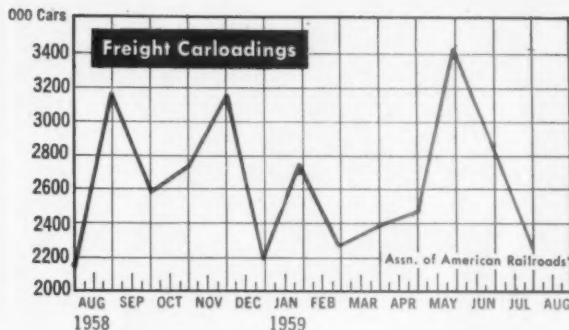
The import rise was due largely to more shipments of petroleum, iron ore, aluminum, copper, nickel oxide, tin, and sawmill products to this country. An increase in imports in the first half, combined with a corresponding drop in exports, is one of the major reasons for our steady loss of gold to foreign countries in the past year.

Machine Tools—New orders for machine tools climbed sharply in June to \$53.5 million. Shipments to manufacturers also rose to \$37.3 million.

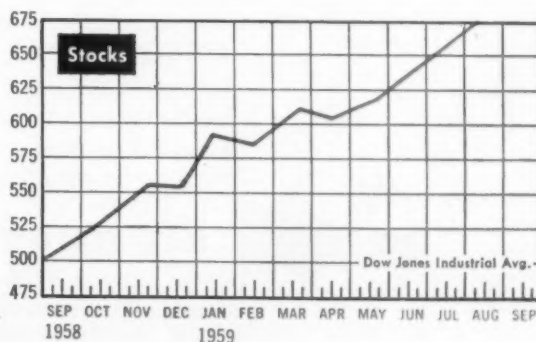
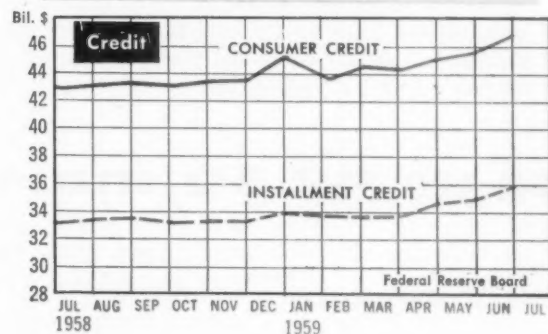
Because of the long lead time for most machine tools, the new business booked in June won't be delivered to customers for many months. Here is another sign of optimism by managements in a wide range of industries that the economy will move forward in the future.

Steel, of course, is a basic raw material for our major industries. Thus the duration of the strike will determine to a large extent the speed of our future economic progress.

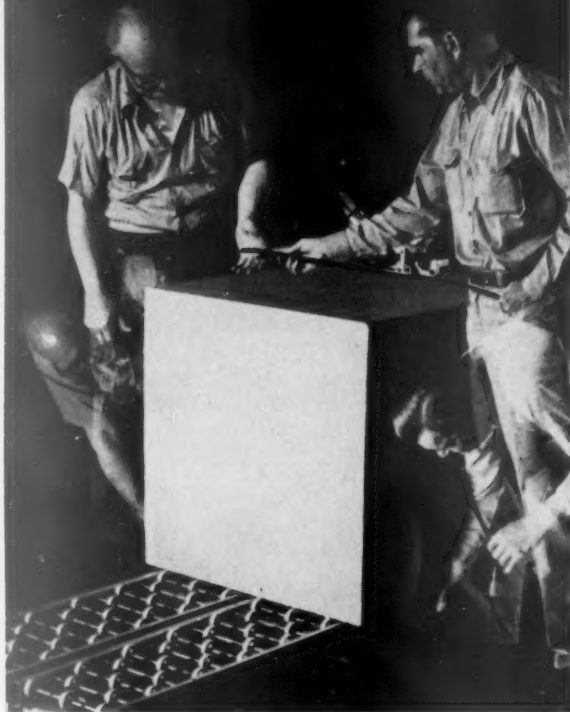
For if the steel strike stretches on throughout the summer and fall, the record-breaking GNP, full-scale production of 1960 automobiles, and boosted new plant and equipment construction will all go down the drain. The steel industry and the USW may be doing the negotiating alone but the entire business community is a silent participant at the bargaining table.



FINANCE



OLD WAY



Without a power strap feeder, one man stands and waits to take the strap and poke it underneath the carton. His partner completes the operation with Signode's electric strapping tool.

NEW WAY



With the power strap feeder, only one man is needed to strap big cartons easily. He puts the strap in the feeder throat and steps on a foot pedal. The feeder carries the strap around the carton.

Costs \$12.50/mo.—saves one man

The Signode Power Strap Feeder has paid for itself quickly on all the big-package strapping lines where it has been placed. It is available on a single payment basis or an annual rental of only \$10 to \$20 a month, depending on model—(\$12.50 for the one shown, not including the electric strapping tool). Yet it frees one man for more productive work. It is simple, versatile...can be used with hand tools or power tools. It is one more way Signode can help make your product cost less to handle, store, ship, and receive. Ask a Signode man for the Power Strap Feeder facts, or write:



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2676 N. Western Avenue, Chicago 47, Illinois

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PURCHASING

The P.A.'s Outlook

- **P.A.'s Predict Strike Will End Before October**
- **N.A.P.A. Reports Business is 'Coasting'**
- **Chicago Assn. Notes Production Gain**

PURCHASING agent optimism that the steel strike will be settled within the next three months is apparently responsible for a jump in the Purchasing Magazine Business Confidence Index.

The August index—derived from a nationwide survey of purchasing agents—rose five points in August to 102 (1958=100). Many P.A.'s, who say that the short-term business outlook will improve in their industries, cite an early end to the steel strike as the most important reason for their belief.

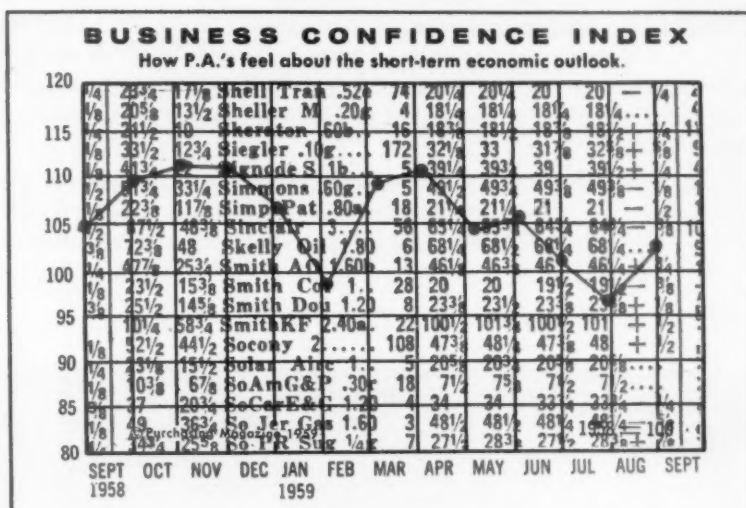
Readjusting Buying Habits

For instance, the purchasing agent for a northeastern battery company predicts better business conditions "provided the steel strike does not last over 30 to 45 days." He feels that "people will be forced to readjust their buying habits after this period."

A Midwestern director of purchases notes that his company's stocks are adequate "if the steel strike is over within four to six weeks." Inventories, he says, are sufficient only for that time.

And an Illinois buyer reports "a strike shouldn't affect us unless it lasts over 80 days. There will be an upward push in the economy after the steel strike settlement."

Business survey reports from



A five point increase in Purchasing Magazine's Business Confidence Index brought this indicator up to 102 (1958=100). The index—based on a cross-section of nationwide purchasing agent opinion—reflects the view held by many P.A.'s that the steel strike will be over by October and the mills will be operating again.

the various purchasing agent organizations also indicate optimism for a rise in the economy—once the steel strike has been settled. This is seen in recent surveys conducted by the National Association of Purchasing Agents and the Chicago and Georgia local associations.

The N.A.P.A. report says business is "coasting." It notes that "the primary concern in looking at the future seems to be the duration of the steel strike. If the strike is settled promptly, our members believe that industrial production will quickly resume its rise."

The association reports that purchasing agents "in general, are buying only what they need to meet current production schedules. . . . Except for strike situations, employment is slightly improved from last month."

Regarding commodity prices, the association says they "are holding steady. Most changes in

the last 30 days . . . have been relatively minor."

According to the Chicago association, "business activity generally is at about the same level as a month ago, with no significant change in order backlogs or profits, and inventories remaining relatively stable."

It notes that "production and employment reflect a slight upward trend." And it adds that there has been "little overall change in the general price situation during the past month."

The Georgia group reports "seldom has the outlook been better for the third and fourth quarters than at the present moment." It says that this indicates a slow but steady build-up of inventories.

"Generally no shortage of materials is reported," it states, "with the exception of seasonal shortages of items more heavily in demand during the summer months."

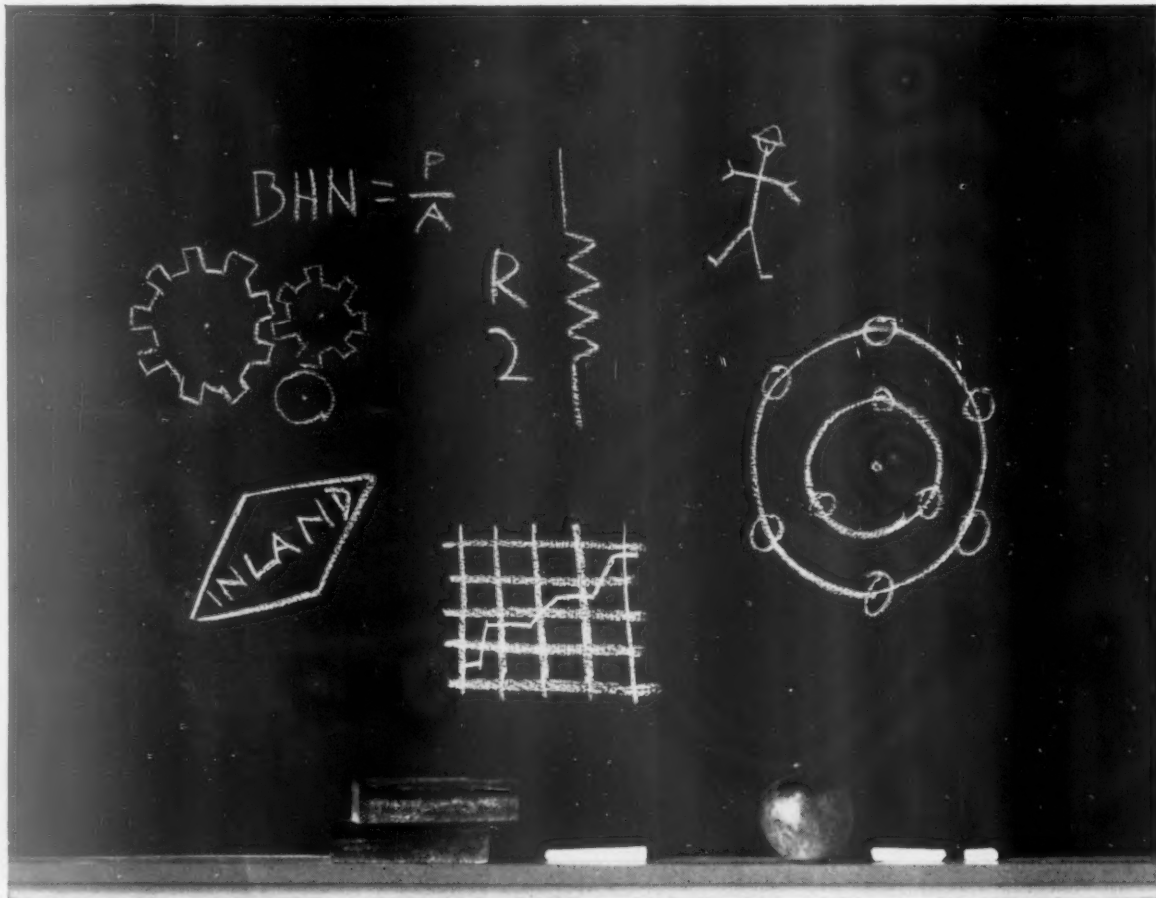
14,089 Inland employees went to school last year

Many went because they were enthusiastic about their jobs—inspired by the advancement opportunities at Inland. Others went because Inland, ever on the watch for men capable of developing their abilities, sought them out—found them—encouraged them to take the next step.

At Inland, this thoughtfully planned system of seeking for such men within the company, has now been in continuous operation for more than fifteen years. Because of it, more than 70% of Inland's supervisory staff have come up from the ranks—30% more from Inland's College Recruitment Program. Because the system encourages personal growth, the process never stops. It may begin with on-the-job training programs in which 3,842 employees participated last year. It can continue through Inland's programs in conjunction with leading educational institutions, such as Harvard, Purdue, University of Chicago and Wabash College.

With literally thousands of Inland men building their own futures, a new kind of climate is created—a climate in which men find real satisfactions in their work and the products of their labor. It results, we believe, in a growth-minded organization—a company dedicated to ever better service and products for every Inland Customer.

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INLAND LIME & STONE COMPANY* *Division

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Price Trends

- **Pickup Expected Soon In Nonferrous Buying**
- **Lead Price Increase Anticipated in 2nd Half**

BUYING ACTIVITY in nonferrous metals is expected to pick up soon. Most plants have reopened after vacation shutdowns, and purchasing agents are closely following market trends in copper, lead, and zinc.

Here's how the picture looks in some of the more important areas:

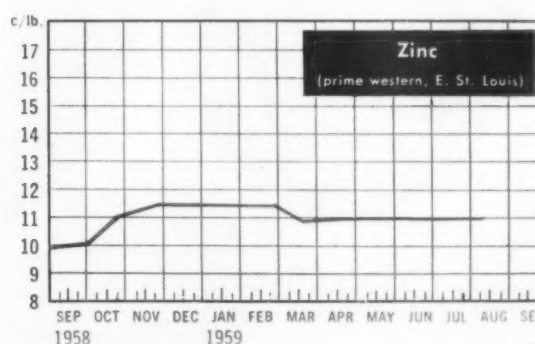
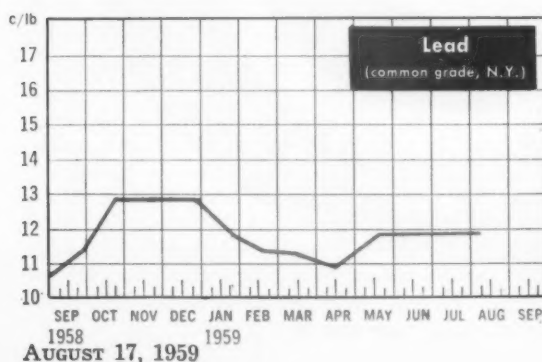
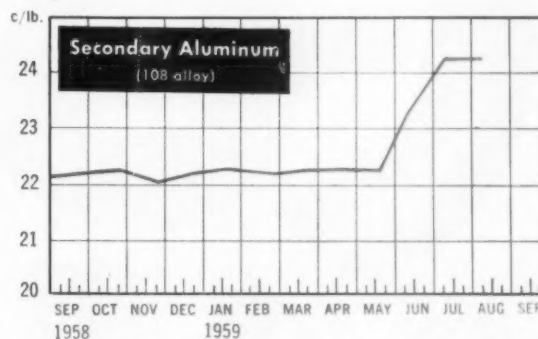
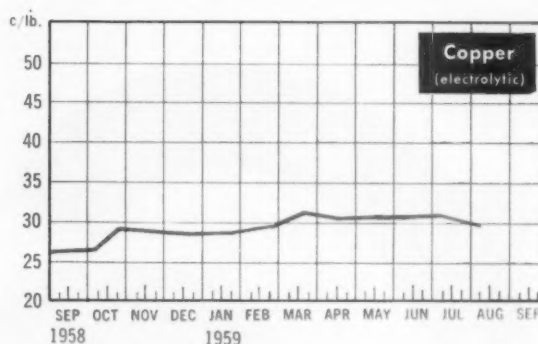
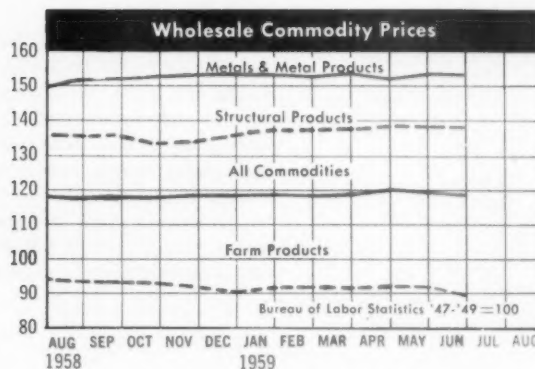
Copper: Shipments of copper last month to P.A.'s for domestic fabricators were about 100,000 tons. Deliveries in June, on the other hand, were 150,993 tons—the highest in 12½ years.

The third quarter will show the usual seasonal dropoff in demand, according to the copper division of the Business and Defense Services Administration. However, it says that the high rate of new construction, increased durable goods output, and greater capital expenditures will push third quarter output above the similar period in 1958.

Lead: Buying of lead—on both a spot and an average price basis—has been fair in recent weeks. However, trading in lead futures on the Commodity Exchange has been light.

A government study of the domestic lead situation predicts a moderate price rise in the second half. A major reason: consumption this year is expected to rise more than 10%.

Zinc: Although zinc prices in the United States have remained relatively steady in recent months, London prices have been moving



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5 STANDARD AND
SPECIAL CONNECTIONS

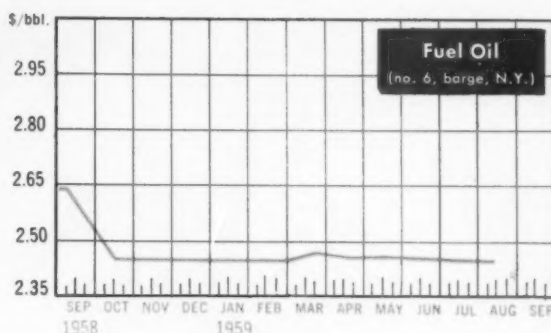
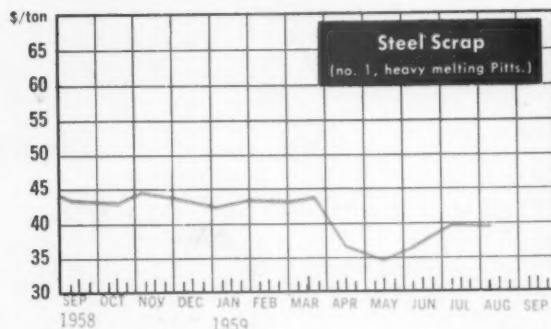
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For More Information Write No. 163 on Inquiry Card—Page 32

Price Trends



upward. At one point, the price there reached a two year high.

Another oddity: in this country zinc prices are lower than lead prices, while in the London market the opposite is true. Some P.A.'s feel that when the steel strike is settled, zinc price tags will soon rise above those of lead.

In Washington, the Tariff Commission is investigating whether zinc—as well as lead—import quotas are being dodged by foreign firms.

Tin: Tin prices have been steady-to-firm recently. Since the start of the steel strike a month ago, many of the leading tin plate manufacturers have been closed down.

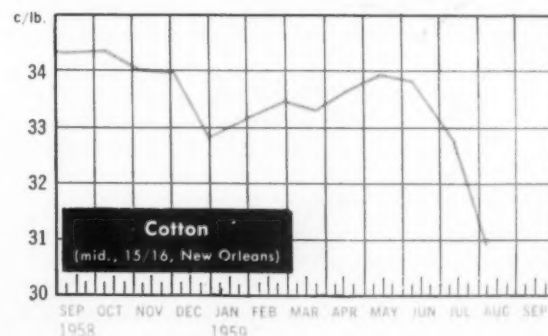
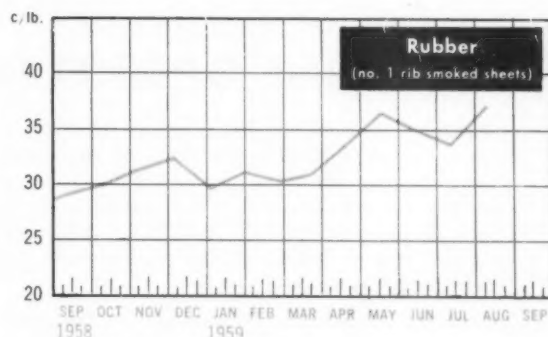
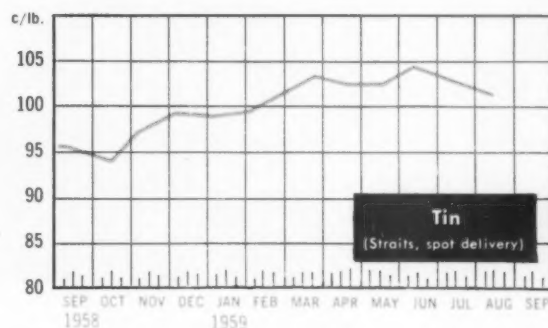
Reports from London indicate that about half of the Buffer Stock has now been disposed of. It looks like the International Tin Council will set another increase in export quotas at its meeting next month.

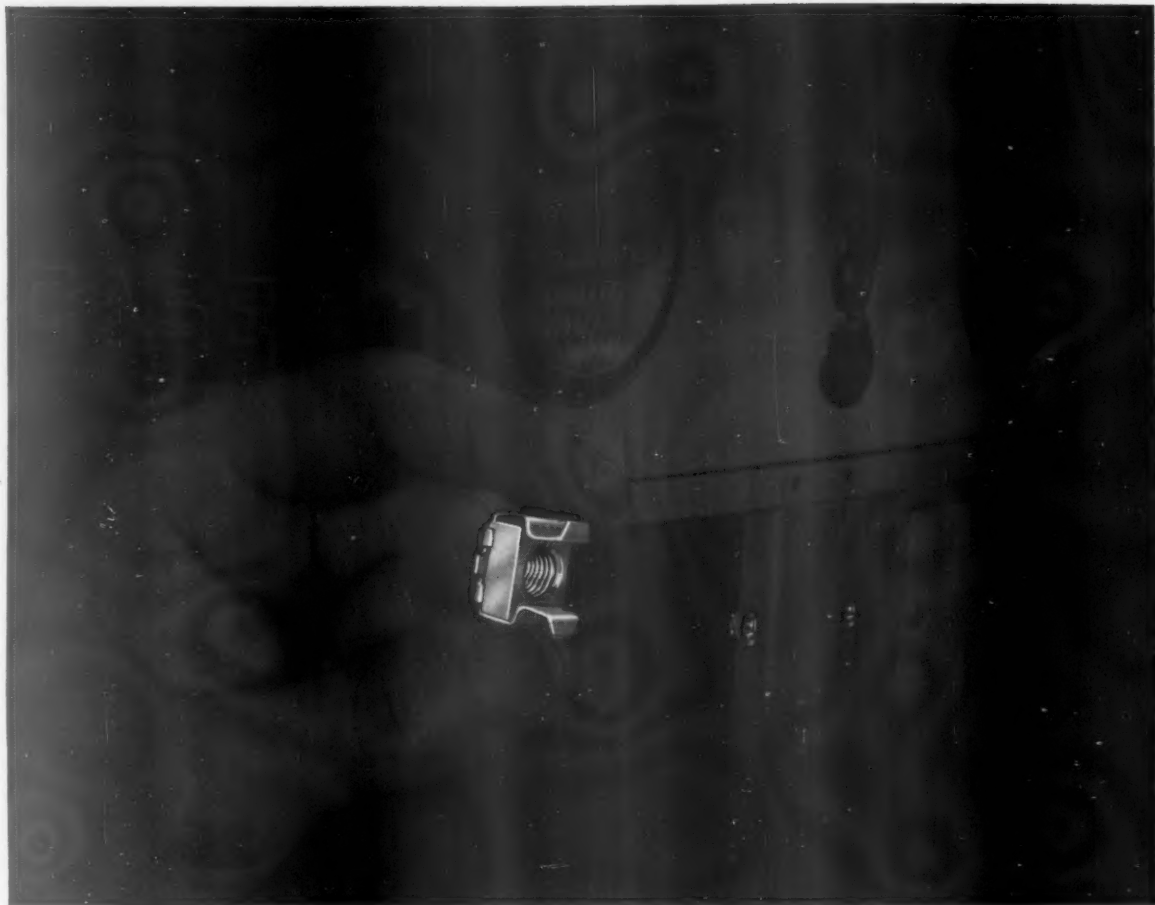
Aluminum: The latest monthly report of the Aluminum Association shows primary production at a new high. Output of pig and ingot totaled 167,323 tons—a hike of about 3500 tons from the previous month.

P.A.'s are paying more for aluminum now as the once-widespread discounts disappear from the market. Posted prices are generally being adhered to by aluminum suppliers.

Wholesale Prices: The wholesale price index recently dropped 0.3% to 119.6 (1947-49=100). Average prices were lower in five of the 13 major non-food commodity groups.

Machinery and motive products rose 0.2%, while metals and metal products increased 0.3%. Among the items responsible for this hike were general purpose machinery and equipment, construction, metalworking, and miscellaneous machinery.





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For More Information Write No. 164 on Inquiry Card—Page 32

Sales, Inventories, Orders

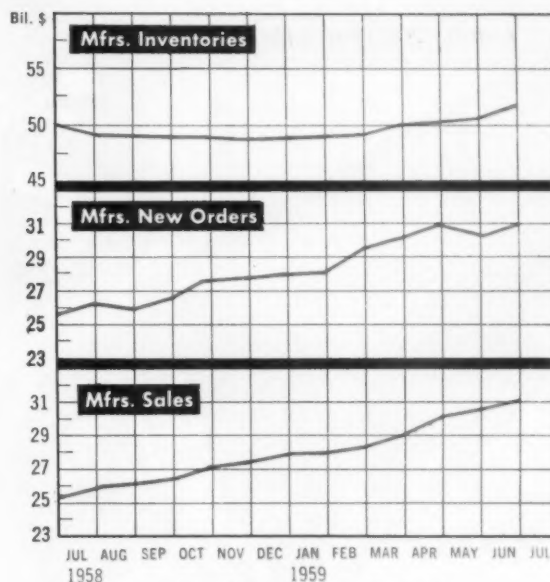
● Manufacturers' Orders Rise to \$31.1 Billion

MANUFACTURERS' inventories continued to rise in June, while sales set another record high. New orders also rose, after a decline in the previous month.

Inventories totaled \$52.1 billion on a seasonally-adjusted basis. The \$500 million increase was about equal to the gain in each of the four previous months. The entire stock accumulation was in the durable goods industries.

Sales climbed to \$31.3 billion—up \$600 million from May. The largest advances were notched by primary metal producers and automobile manufacturers.

New orders were \$31.1 billion, also up \$600 million from the previous month. Again, the whole increase was chalked up in the hard goods sector.



Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)

	1958	1959				
	June	Feb.	Mar.	Apr.	May (r)	June (p)
All Manufacturing Industries.....	28,142	28,481	29,106	30,266	30,742	31,256
Durable-goods industries.....	14,207	13,870	14,376	15,166	15,515	15,766
Primary metal.....	2,289	2,421	2,580	2,792	2,858	2,913
Fabricated metal.....	1,492	1,526	1,605	1,684	1,711	1,745
Machinery.....	4,259	4,131	4,226	4,423	4,507	4,552
Transportation equipment.....	3,241	3,168	3,188	3,385	3,463	3,571
Lumber and furniture.....	1,076	894	918	995	1,041	1,029
Stone, clay, and glass.....	741	677	731	756	766	773
Nondurable-goods industries.....	13,935	14,611	14,730	15,100	15,227	15,490
Food and beverage.....	4,183	4,479	4,465	4,507	4,617	4,589
Tobacco.....	382	428	416	411	388	417
Textile.....	1,063	1,140	1,200	1,253	1,310	1,314
Paper.....	877	977	988	1,034	1,026	1,027
Chemical.....	1,894	1,930	1,979	2,090	2,089	2,144
Petroleum and coal.....	2,780	3,037	3,046	3,080	2,944	3,072
Rubber.....	458	490	506	543	524	536

Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)

	1958	1959	1959	1959	1959	1959
	June	Feb.	Mar.	Apr.	May (r)	June (p)
All Manufacturing Industries.....	53,853	49,861	50,323	51,052	51,599	52,084
Durable-goods industries.....	31,438	28,373	28,846	29,361	29,734	30,181
Primary metal.....	4,207	4,280	4,372	4,368	4,312	4,216
Fabricated metal.....	3,077	3,069	3,120	3,175	3,278	3,358
Machinery.....	10,601	9,063	9,155	9,346	9,482	9,739
Transportation equipment.....	7,919	6,608	6,806	7,031	7,167	7,347
Lumber and furniture.....	1,845	1,702	1,722	1,731	1,759	1,766
Stone, clay, and glass.....	1,254	1,201	1,205	1,235	1,254	1,267
Nondurable goods industries.....	22,415	21,488	21,477	21,691	21,865	21,903
Food and beverage.....	4,882	4,740	4,752	4,870	4,967	4,951
Tobacco.....	2,064	1,902	1,876	1,868	1,873	1,825
Textile.....	2,612	2,476	2,451	2,482	2,487	2,505
Paper.....	1,442	1,459	1,462	1,463	1,482	1,488
Chemical.....	3,692	3,744	3,742	3,696	3,730	3,770
Petroleum and coal.....	3,486	3,273	3,286	3,367	3,380	3,389
Rubber.....	1,027	1,032	1,030	1,015	2,951	2,983

Manufacturers' New Orders Seasonally Adjusted (Millions of Dollars)

	1958	1959	1959	1959	1959	1959
	June	Feb.	Mar.	Apr.	May (r)	June (p)
All manufacturing industries.....	27,055	29,702	30,214	31,206	30,541	31,143
Durable-goods industries.....	13,249	14,918	15,308	15,796	15,241	15,849
Nondurable-goods industries.....	13,806	14,784	14,906	15,410	15,300	15,294

(r) Revised.

(p) Preliminary.

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Longer Fatigue Life

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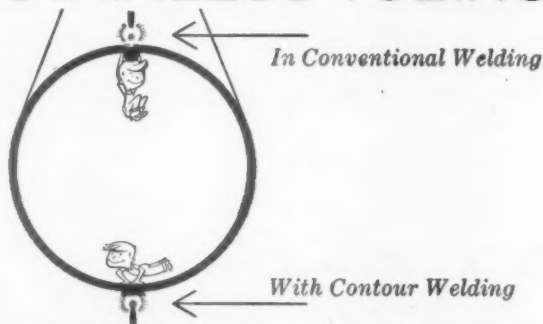
But here's why *Contour-welded* tubing is smoother inside:

First, it's smoother than seamless because it's formed from uniformly rolled strip steel whereas seamless must be extruded.

And second, it's smoother than other welded tubing because the Trent-patented *Contour-Weld* process virtually eliminates the weld bead.

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†Trademark Haynes Stellite Co.



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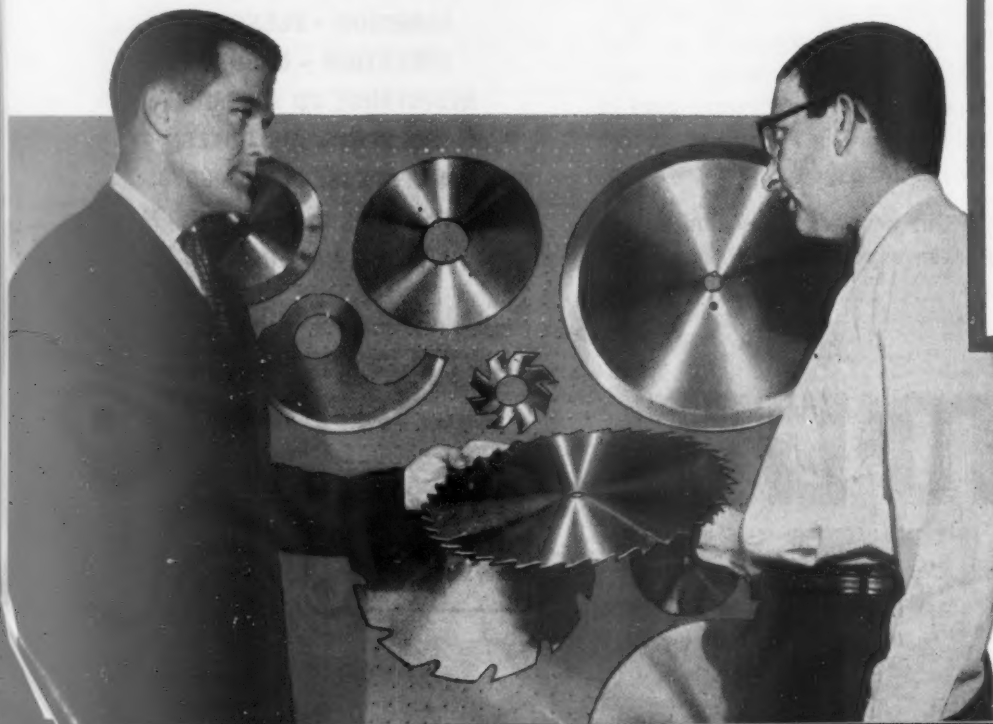
What happened: Using ARGON Oil No. 4 in 100:1 concentration, Chicago Saws was able to reduce coolant costs 40%. They also found the work could be seen more clearly when using this coolant. There was less wheel loading. They also discovered the coolant didn't foam and that its exceptional ability to carry off heat resulted in cooler operation. Faster cuts were obtained with finer wheels. Tolerances were easier to hold. Better finishes were obtained. Less frequent wheel dressings were required.

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- Fire resistant
- Odorless

Standard's Bob Stark and Chicago Saws' vice president Paul Bostrom discuss blades and coolants. Bob Stark is well qualified to work with manufacturers on the use of metalworking coolants. Bob has a chemistry degree from Illinois College plus three years' experience at Standard. He has completed the Standard Oil Sales Engineering School course.

Washington Report

Steel Inventories Held Adequate By Gov't. Analysts

WHILE the bulk of the steel industry banked furnaces and shut down completely when the strike was called, somewhere between 10% and 13% of the industry continues to operate at capacity level, unaffected by the union shutdown.

To some of those unaffected, the reprieve was short-lived. They had contracts that expired on July 31. Still others had contracts which ran through to the middle of August, while other contracts continue to the end of August. A number of companies have independent unions, and some have contracts with AFL-CIO-Affiliated unions other than the United Steelworkers of America.

Obviously, the small percentage of steel capacity that continues to operate cannot do more than pad out the inventories built up before the strike call. Some of the most important producers—like the Ford Motor Company, with an annual production capacity of 1,898,600 tons and whose production continues as the company labor contract is not with the USW—reserve their output for internal company requirements. In other instances, some of the production that continues without a stoppage is specialty steel with a limited end use.

What is more important, however, is that the mills which were shut down initially on July 15 had an annual capacity of 123,896,550 tons. On the other hand, the producers that continued operating had an annual capacity of 23,579,440 tons. Additional shutdowns at the end of July and so far in August have decreased the latter figure even more.

Few Shortages Thus Far

Government analysts whose primary responsibility is collecting data on inventory levels point out that there is no statistical

basis for accurately projecting the steel inventories held by industry—either at the beginning of the strike or at the current time.

Rough estimates made by some of these analysts placed the inventory figure on July 15 at about 21 million tons. These sources projected that, with the additional tonnage currently available from plants which were not struck, there would be enough inventory to "run" industry for a period of three months.

These projections do not take into account the fact that even the best distribution of inventory in the hands of all users would still mean considerable imbalance. Also, some companies would be severely squeezed long before the nation's steel inventory begins to look dangerously low.

Spokesmen for the American Steel Warehouse Association point out that when the shutdown took

place, the inventories held in warehouses were at a peak. They note, too, that there was a good balance in products all across the country. The only steel shortage reported was a small one in sheets and galvanized in the Chicago and surrounding area.

July 15 inventories in steel service centers were roughly a million tons greater than at the outset of the 1956 strike. Overall, inventories of steel held by all distributors and users were several million tons less than the levels accumulated at the outset of the 1956 steel strike.

Pressure on the Steel Industry

The first minor break in the steel deadlock came just two weeks after the work stoppage was called.

Contracts between major aluminum producers and the United Steelworkers of America were

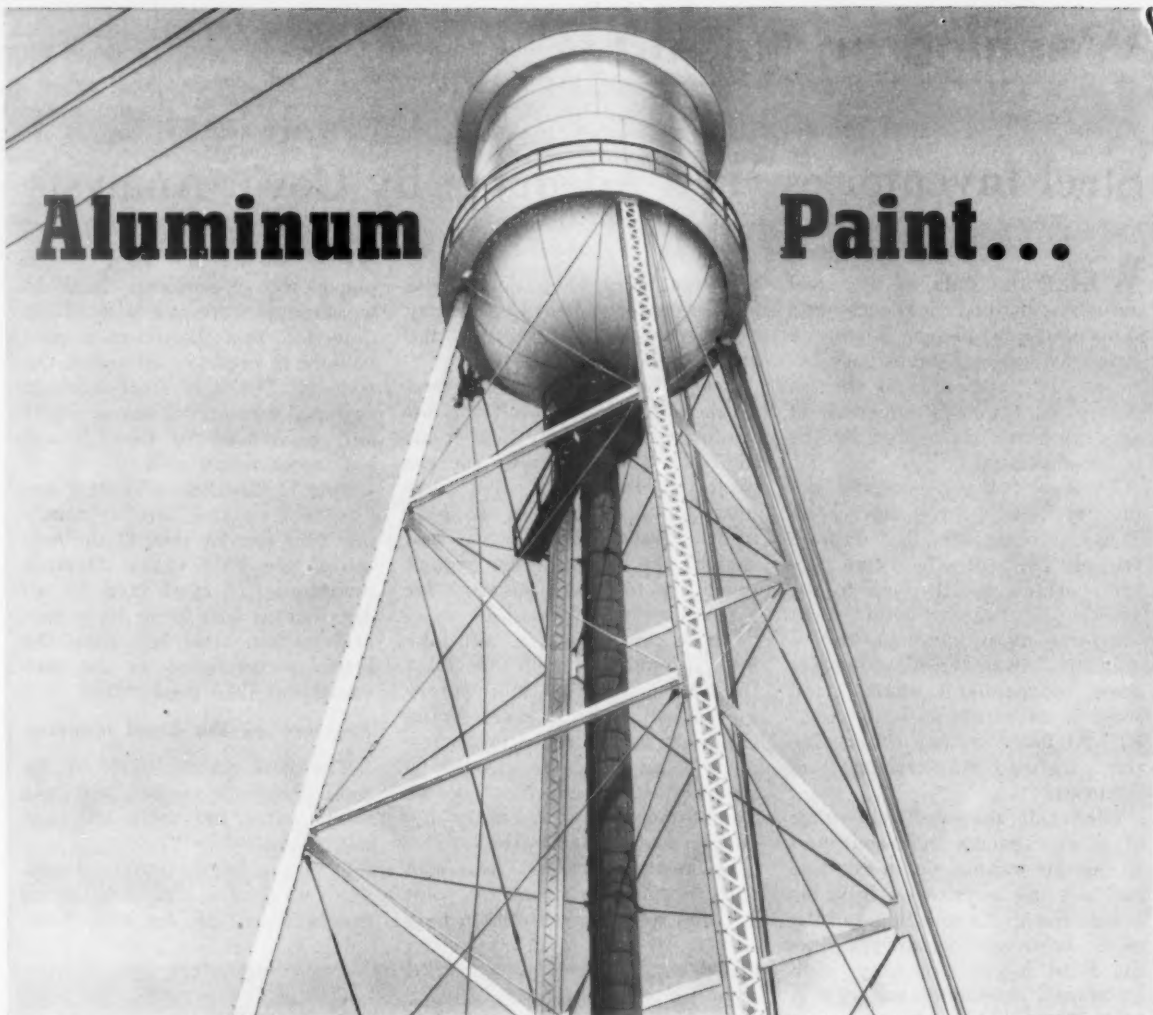


Senate Majority Leader Johnson (l.) plans to push a cut in the President's appropriation requests through Congress, despite the views of Secretary of the Treasury Anderson.

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←on Inquiry Card—Page 32
AUGUST 17, 1959

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Washington Report

due to expire on July 31. Had the aluminum industry shut down, the steel wage problem would have been complicated even further.

Instead, the aluminum companies and the USW—which has organized a good percentage of the aluminum industry workers—agreed to hold off their contract deadline until 30 days after the settlement of the steel strike. With the aluminum industry operating at full tilt, the steel companies will be under more pressure to work out a settlement. The thinking here is that, the aluminum industry is likely to settle along the same lines hammered out in steel without a strike.

Are Strikes Pre-planned?

In addition to the fact-finding activities by Secretary of Labor Mitchell, who has been exploring a basis for ending the steel strike, an independent government study is underway to determine why the steel industry is so plagued with strikes.

The current strike is the sixth industry-wide steel walkout since the end of World War II. The first came in 1946, when the workers were out for three to four weeks. Another strike in 1949 lasted over a month.

Three years later, the USW walked out again, this time for over 50 days. Then in 1955 came the shortest strike—for just 12 hours. Three years ago, the union struck for 34 days.

Government economists are probing the reasons why there have been so many stoppages in one industry. This is a particularly puzzling phenomenon, since labor-management relations in steel during the postwar period have at times been warmly cordial. In fact, the head of the steelworkers union is often pictured as a friend and confidant of some of the steel industry top leaders.

One view in Washington is that the industry finds it extremely economical to produce at close-to-capacity. There is, therefore, a tendency to over-produce. The

alternative to strikes, according to this viewpoint, would be large-scale layoff of workers in periods when the industry operated at much less than capacity. Rather than this unpalatable choice, both management and labor jockey themselves into a strike position.

• '59 Inventory Buildup Is Solidly Based

Office of Business Economics officials, taking a reading on business trends at mid-year, are highly pleased with the results of their pulse-taking.

They note that employment showed more improvement, consumer purchasing power continued to increase, business profits increased, and price increases were small.

The general trend in inventories was toward better balance. Industry, the OBE analysts report, has followed a policy of rounding out stocks, and has built up inventory of raw materials and components. On the other hand, during the '57-'58 recession, large stocks of unsold finished products were accumulated involuntarily.

The Commerce Department analysts agree that part of the favorable inventory picture at mid-year came about because buyers anticipated strike shortages. But they point out that "the major impetus of stock building" has been to support the greatly expanded rate of operations.

• Government Seeking Export-Import Balance

Imports from abroad now roughly equal exports—at an annual rate of \$15 billion. The outlook is for an increase in buying from abroad and for exports at least to hold their present level.

The sale of commercial jet aircraft to foreign airlines will tend to bolster U. S. sales abroad. Also, subsidized exports of cotton will add to our export total. However, it appears that our purchases will soon exceed our sales.

The imbalance that will result is complicated by the high level of military and foreign aid we

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Practically everyone who manufactures plasticizers is using a Becco epoxidation technique or a slightly modified version.

Since 1950 Becco has been foremost in research and development of the epoxidation of unsaturated fatty acid esters.

Take advantage of these years of experience. Write immediately, outlining your particular interest, or request a free copy of Becco Bulletin No. 69—"Epoxidation and Hydroxylation with Becco Hydrogen Peroxide and Peracetic Acid". Use the handy coupon below.

BECCO



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BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo 7, New York

Dept. PM-M

Gentlemen:
Please send me the free Technical
Bulletins checked below:

☐ #2 ☐ #41 ☐ #42 ☐ #46 ☐ #70

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FIRM _____

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BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo 7, New York

Dept. PM-K

Gentlemen:

Please send me

☐ Becco Bulletin No. 1—"Active Oxygen Chemicals".

☐ Detailed information on _____

NAME _____

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ADDRESS _____

CITY _____

ZONE _____ STATE _____

BECCO CHEMICAL DIVISION, FMC
Station B, Buffalo 7, New York

Dept. PM-N

Gentlemen:
Please send me a free copy of Becco
Bulletin No. 69.

NAME _____

FIRM _____

ADDRESS _____

CITY _____

ZONE _____ STATE _____

Washington Report

are giving our allies. In the past, such aid contributed greatly toward rebuilding the currency and gold position of the Western European nations.

Now these positions have been built up. The large shipments of gold from this country in the last year-and-a-half—after decades in which the U. S. had been a gold accumulator—are seen here as a real problem.

There are several suggested solutions. Exporters urge that we start a major campaign to sell more abroad. Domestic industry takes the position that tariffs and import quotas could right the imbalance — and also protect American products from foreign competition. Those who oppose foreign aid suggest that we scale down this program sharply.

For the next 12 months, the United States is not likely to take any of these courses. Thereafter, if the flight of gold from this country becomes increasingly serious, some steps will have to be taken.

• Revised Index Shows Greater Growth

The revision of the Federal Reserve Board Industrial Production Index will show that our rate of growth over the past 10 years has been greater than previously reported.

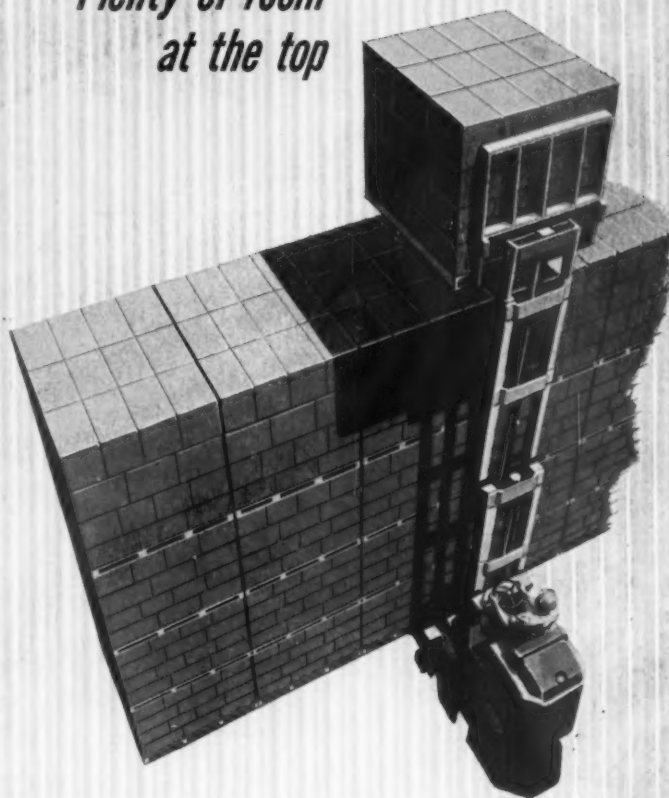
This gives a partial answer to critics who claim that our industrial growth has been too slow.

The Federal Reserve has been engaged recently in a basic revision of the IPI. Two new factors have been taken into account. First, results of the 1954 Census of Manufacturers have provided more concise information on the rate of growth of industry. It has also yielded data for the reweighting of industries in the index.

The second factor is the growth rate in fuel and energy production. This is an area that was not previously represented in the index and has shown a higher than average growth.—A. N. Weckler

For More Information Write No. 170
←on Inquiry Card—Page 32
AUGUST 17, 1959

*Plenty of room
at the top*



Filling your warehouse space to the limit? Hinde & Dauch corrugated boxes stack high and straight. Need better top-to-bottom protection for your product? Better see H & D.



Hinde & Dauch

Division, West Virginia Pulp and Paper

AUTHORITY ON CORRUGATED PACKAGING • SANDUSKY, OHIO
15 FACTORIES • 42 SALES OFFICES

For More Information Write No. 171 on Inquiry Card—Page 32

REPORT

PART—Manganese bronze part
10" x 9" x 2" taper

OPERATION—Cutting off on Tabor machine—25 hp.

PROBLEM—To increase production with less wheel wear

SOLUTION—"Job-Engineered" Standard A24-R-BFC—16" x 1/8" x 13/8"

RESULT—500% increase in production

500% more production with this **standard** reinforced cut off wheel

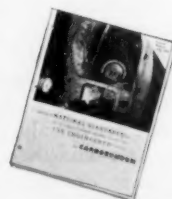
Reinforced Wheels are widely known for their unusual strength and resistance to wear and cracking in rough grinding and cut off operations. It is not unusual to find impressive production records such as this recent test of *standard* BFC cut off wheels by a large non-ferrous foundry. The test consisted of high speed cutting off of a manganese bronze part. A careful check of wheel loss per piece indicated that the BFC wheel lasted 5 times

longer than previous wheels used. The result—the customer now buys one Carborundum wheel in place of five of the others. If you have a cut off problem, it will be to your advantage to select your wheel requirements from Carborundum's line of NATIONAL STANDARDS. Your Carborundum distributor maintains a complete stock of NATIONAL STANDARDS for immediate delivery. On your next order...

Specify "Job-Engineered" NATIONAL STANDARDS by

CARBORUNDUM
REGISTERED TRADE MARK

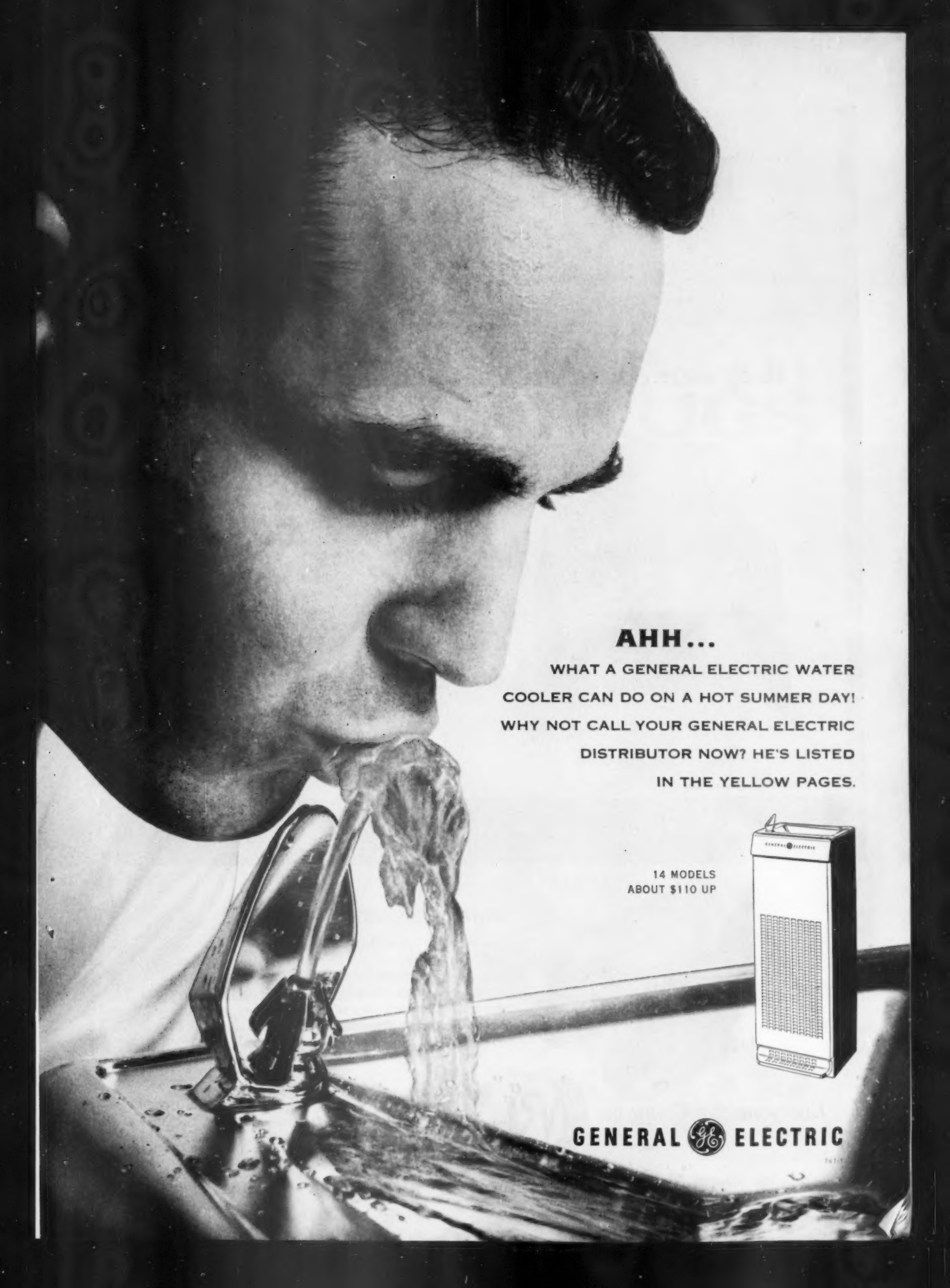
WRITE FOR YOUR CATALOG OF NATIONAL STANDARDS, Form A-1489 and prove to yourself how "Standards" can solve many of your abrasive problems. Send your request to The Carborundum Company, Dept. P 81-95, Niagara Falls, N. Y.



R 81-95

For More Information Write No. 172 on Inquiry Card—Page 32
28

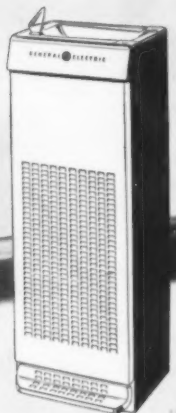
For More Information Write No. 173 on Inquiry Card—Page 32→
PURCHASING



AHH...

WHAT A GENERAL ELECTRIC WATER
COOLER CAN DO ON A HOT SUMMER DAY!
WHY NOT CALL YOUR GENERAL ELECTRIC
DISTRIBUTOR NOW? HE'S LISTED
IN THE YELLOW PAGES.

14 MODELS
ABOUT \$110 UP



GENERAL  ELECTRIC

Men who Count KNOW

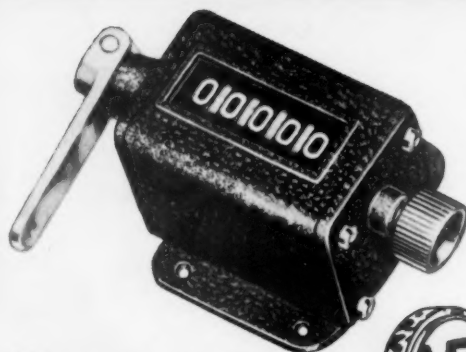
they can count on Veeder-Root Precision



Craftsmanship that measures up to fine watchmaking standards . . . that's what you get in Veeder-Root Counters like those shown below. And Veeder-Root precision is a *constant, known quantity* that remains unchanged under highest speeds and toughest operating conditions.

Nothing surprising about this, because Veeder-Root has been making precision counting and computing devices longer than anyone in this line of business. So if you have a touchy counting problem, bring it to The Counting House of Business and Industry.

You always "Know the score" when you count on Veeder-Root!



SMALL RESET COUNTERS

One of the most widely applicable counters made today is this rugged, reliable Small Reset Counter, available in ratchet, revolution and combined types. These and many other V-R mechanical and electrical counters are available from the nearest V-R office or your nearest authorized V-R Distributor.

Everyone can Count on



Veeder-Root INC.

Hartford 2, Connecticut

Hartford, Conn. • Greenville, S. C. • Altoona, Pa. • Chicago
New York • Los Angeles • San Francisco • Montreal
Offices and Agents in Principal Cities

For More Information Write No. 174 on Inquiry Card—Page 32
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For More Information Write No. 175 on Inquiry Card—Page 32→
PURCHASING

with over 500 sizes in a dozen different styles now in stock

THERE'S REALLY NOTHING LIKE CAPPLUGS*

* Extremely easy to apply and remove. Caplugs fit a tremendous variety of tubing, threaded fittings and mechanical parts. Uniformly molded of tough, flexible Polyethylene, they won't chip, break, shred or collapse.

to keep products safe and sound during process, storage and transit

*Get a kit full of samples in exchange
for the coupon attached*

CAPPLUGS DIVISION, PROTECTIVE CLOSURES CO., INC.
2201-5 Elmwood Ave., Buffalo 23, N.Y.

*Mail a free assortment of Caplugs, literature and prices to us,
without obligation.*

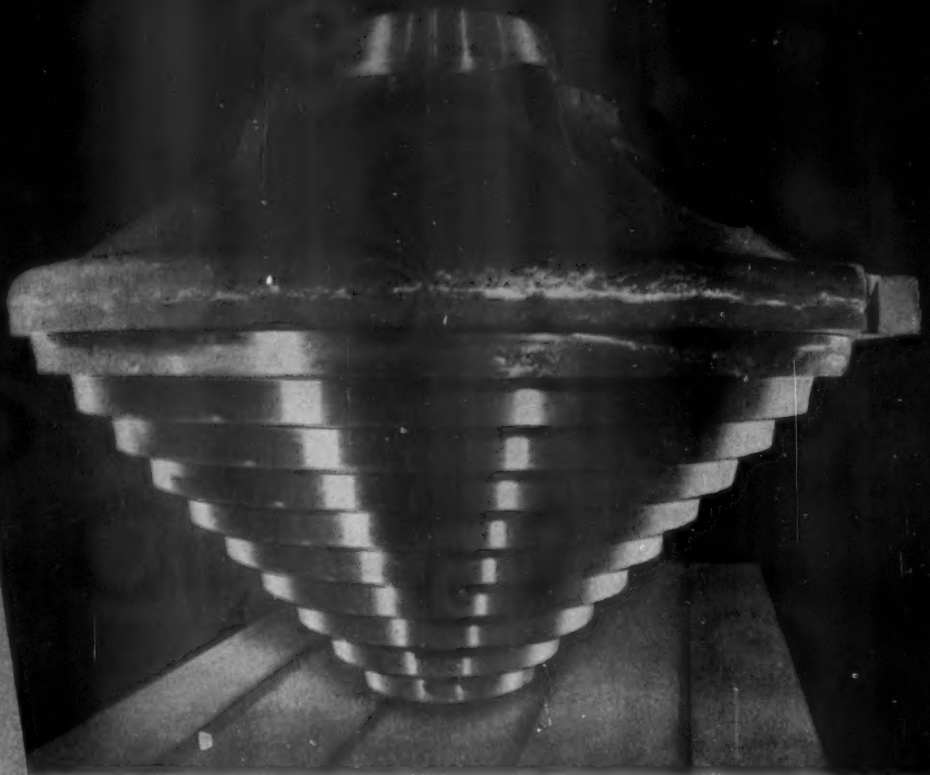
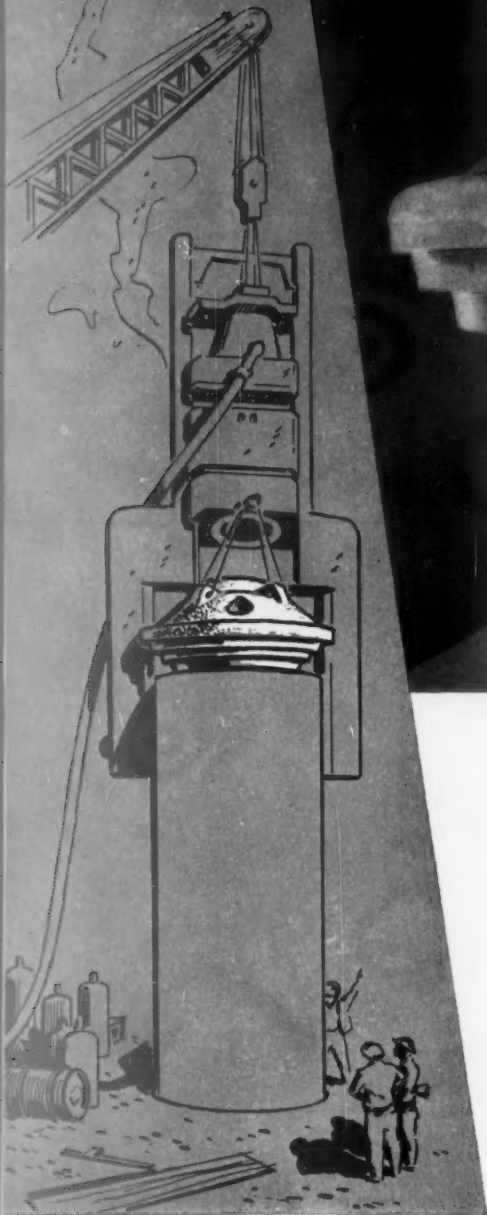
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FIRM _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

Giant Cast Steel "Top" For An Oil Explorer



If this 17,540 pound cast steel pipe cap were not used to set a string of oil well casing, it could be mistaken for a gigantic spinning top. Either way, here is visual proof of the diverse requirements for industrial steel castings which are satisfied by the experienced engineers, metallurgists and skilled foundrymen of Erie Forge & Steel Corporation. From the open hearth melt through the machining operation to the shipping dock, close quality control is our prime concern.

Erie Forge & Steel for many years has been making Steel Castings for rolling mills, cement mills, blast furnaces, presses, forging hammers, power turbines, ships, oil field production equipment and heavy industrial machines.

You can depend upon us to meet your most severe steel casting and forging requirements.

ERIE FORGE & STEEL CORPORATION

ERIE, PENNSYLVANIA

Got a problem that calls for thread-cutting screws?

PARKER-KALON offers three new, improved thread-cutting screws for every application in every material



1 New, Improved P-K Type F*

... hardened thread-cutting screws developed for use in friable, granular or brittle material. The pilot, with its five tapping flutes, cuts a machine screw thread as the screw is turned in. The Type F is ideal for making fastenings to ferrous and non-ferrous castings, bronze or brass forgings, heavy gage sheet metals, structural steels, plastics and resin-impregnated plywood.



2 "Pentap"... the new, Improved P-K Type B-F*

(formerly F-Z) combining the five thread-cutting flutes of the Type F screw with the coarse-pitch, widely-spaced threads of the P-K Type B. The thread-cutting "Pentap" Type B-F distributes cutting pressure evenly, lets chips drop to the bottom of the hole, and prevents cracking of material. It is designed for making fastenings to comparatively thin sections and bosses in friable and brittle plastics.



3 P-K® Type L†

... is a completely new and improved thread-cutting screw developed by Parker-Kalon especially for use in Nylon. The Type L functions as a combination thread-cutting and thread-forming screw in that it cuts a small amount of the Nylon to allow the full diameter threads to form. Type L offers a particular advantage in Nylon assemblies which must be disassembled for service, because the P-K Type L can be removed and replaced without stripping or galling.

The five cutting flutes on the new, improved P-K Type "F" and "BF" reduce pressure development by 80 percent! The completely formed threads on these screws have sharper cutting edges, and 5 deep flutes that are of continuous depth. These features make for better clearance of the accumulated material and assure minimum stresses in driving, and avoid the possibility of stripping or galling.



FOR SEMS... and Neoprene or Nylon washer **STAPS®** in thread-cutting and thread-forming tapping screws, or machine screws in any kind of pre-assembled fastener-washer combination, P-K can supply them, too!

KEEP AMERICAN INDUSTRY AT WORK... BUY P-K... MADE IN U.S.A.

*Patent Pending †U. S. Patent 2,350,346

FOR SAMPLES OF P-K THREAD-CUTTING SCREWS AND SEMS, CALL YOUR LOCAL P-K "BULK-STOCKING" DISTRIBUTOR

PARKER-KALON® fasteners

PARKER-KALON DIVISION, General American Transportation Corporation, Clifton, New Jersey • Offices and Warehouses in Chicago and Los Angeles

Correct Lubrication in Action...

Fastener company cuts



Here some of the billions of fasteners produced by United-Carr Fastener Corporation undergo pickling bath before being plated. This company is a leader in the production of fasteners of all kinds for all industries.



**Complete Engineering Program
Proved Petroleum Products**

Mobil

maintenance costs 40%

Here's how United-Carr Fastener Corporation saved over
\$37,000 with the help of Mobil Correct Lubrication!

United-Carr Fastener Corporation manufactures thousands of types of metal fasteners, stampings, and plastic-to-metal components . . . brings out hundreds of new products every year. To maintain a competitive edge, costs must be kept to a bedrock minimum.

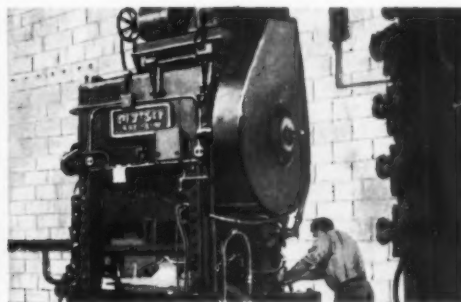
Records of the company's Carr Fastener Division show that along with capital improvements, a Mobil Program of Correct Lubrication helped lower maintenance costs per machine hour 40% last year. Overall savings during a period of over 3 years amount to \$37,000.

Mobil engineers and plant personnel studied savings possibilities. Maintenance schedules were carefully planned to cut machine servicing time. Mobil laboratory analyses of lubricants were helpful in solving downtime and severe-wear problems. Mobil recommendations for improvements in lubrication system helped lengthen machine life. In fact, machine downtime has been reduced to a point where maintenance crews no longer need to job out repairs but can handle them themselves.

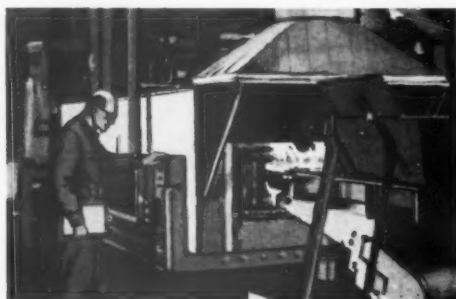
This is *Correct Lubrication in Action*. Why accept less for your plant?



Clogged oil filters on high-speed presses caused constant shutdowns. Mobil studied lubrication system design—suggested improvements to keep lubricant and machines clean. Contamination was reduced . . . filter replacements cut 50% . . . \$1,303 saved.



Bearings and gears on press drive units failed frequently. Mobil investigation indicated abnormal wear. Mobil recommended case-hardened gears and extreme-pressure lubricant. Gear and bearing life doubled . . . \$19,934 saved in 31-month period.



Due to high heat and heavy loads, conveyor belt bearings in drying ovens had to be replaced yearly. Mobil recommended a lubricant that cut this expensive time-consuming task—saved Carr Fastener \$293 in 24 months.



Severe acid, alkali and wash conditions caused once-a-week bearing failure on tumblers. Mobil recommended more frequent application and inspection. Result—bearing failure almost completely eliminated . . . \$4,376 saved in 39-week period.

Correct Lubrication

Another reason You're Miles Ahead with Mobil!

Grinnell offers you a complete line of pipe hangers and supports

HERE ARE 24 TYPICAL EXAMPLES . . .



adj. swivel ring
solid ring type
fig. 101



adj. swivel ring
split ring type
fig. 104



split ring
with socket
fig. 107



split ring
with turnbuckle
adjuster fig. 115



adj. wrought
ring fig. 97



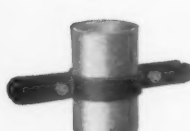
adj. wrought ring
fig. 269



wrought pipe
clamp fig. 212



adj. wrought
clevis fig. 260



extension pipe
or riser clamp
fig. 261



extension split
clamp hanger
fig. 139



light welded-steel
bracket fig. 194



standard U-bolt
fig. 137



CB-Universal
concrete insert
fig. 282



wedge type
concrete insert
fig. 281



adj. wrought
beam attachment
fig. 252



adj. swinging
hanger flange
fig. 155



one hole clamp
fig. 126



G-Clamp hanger
fig. 92, 93



C-Clamp
figs. 83, 84,
85, 86, 87, 88



malleable beam
clamp with extension
piece fig. 229



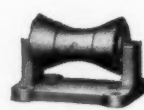
universal side
I-Beam clamp
fig. 225



single pipe roll
fig. 171



adj. steel yoke
pipe roll
fig. 181



pipe roll complete
fig. 271

Look this page over. Shown are some of Grinnell's pipe hangers and supports. In the *complete* line will be found a solution to *any* pipe suspension problem you may have.

The maximum recommended load ratings for hangers have been established by thorough testing in the Grinnell Research and Development Laboratories. They are based on

a minimum safety factor of 5, or the allowable stresses specified in the ASA Code for Pressure Piping.

Many of Grinnell's hangers are listed by the Underwriters' Laboratories, Inc., and they are approved by the Factory Mutual Laboratories for use in fire protection systems. For any pipe suspension problem, look to Grinnell.

GRINNELL

AMERICA'S #1 SUPPLIER OF PIPE HANGERS AND SUPPORTS



Grinnell Company, Providence 1, Rhode Island

Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic fire protection systems • Amco air conditioning systems

For More Information Write No. 178 on Inquiry Card—Page 32
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For More Information Write No. 179 on Inquiry Card—Page 32→
PURCHASING



Change hats
with your maintenance man



You'll find out, with . . .

Vertical Lift Metal-clad you perform normal breaker maintenance in 20 minutes

Ask your maintenance man which make of metal-clad switchgear is easiest and quickest to maintain, and it's an odds-on bet he'll tell you General Electric Vertical Lift.

He can show you why. For example, one man, in just 35 seconds, can remove the box barrier to inspect the

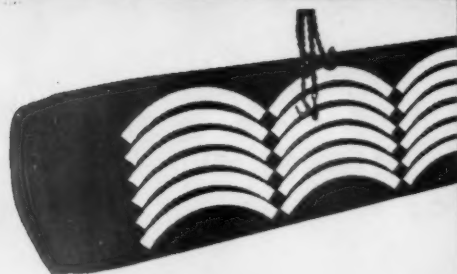
contacts. The arc chutes do not have to be removed. In fact, he can complete routine maintenance of an entire Vertical Lift breaker in 20 minutes or less. Saving his time saves you dollars. General Electric Company, Schenectady 5, New York.

511-34

Progress Is Our Most Important Product

GENERAL  ELECTRIC

With Airco's
Multiple-Torch Flame Cutting Equipment...



MACHINE QUALITY CUTS



Whether it is the warehousing of steel parts for supply to metal-fabricators, or the production of parts by fabricators for assemblies and end products, multiple-torch flame cutting today plays a role of growing importance in modern industry.

"Machine quality" means close-tolerance cuts with equipment such as Air Reduction's Travograph® (shown in action), just one item in Airco's extensive line. It means

elimination of plate-edge preparation for close fit-up, reduced handling and reduced labor costs . . .

Quality cuts with Airco machines are obtainable on a wide range of steel thicknesses for an unlimited variety of shapes. For information about the Airco cutting equipment best suited for your job, call your nearest Airco District Office, or write for literature.



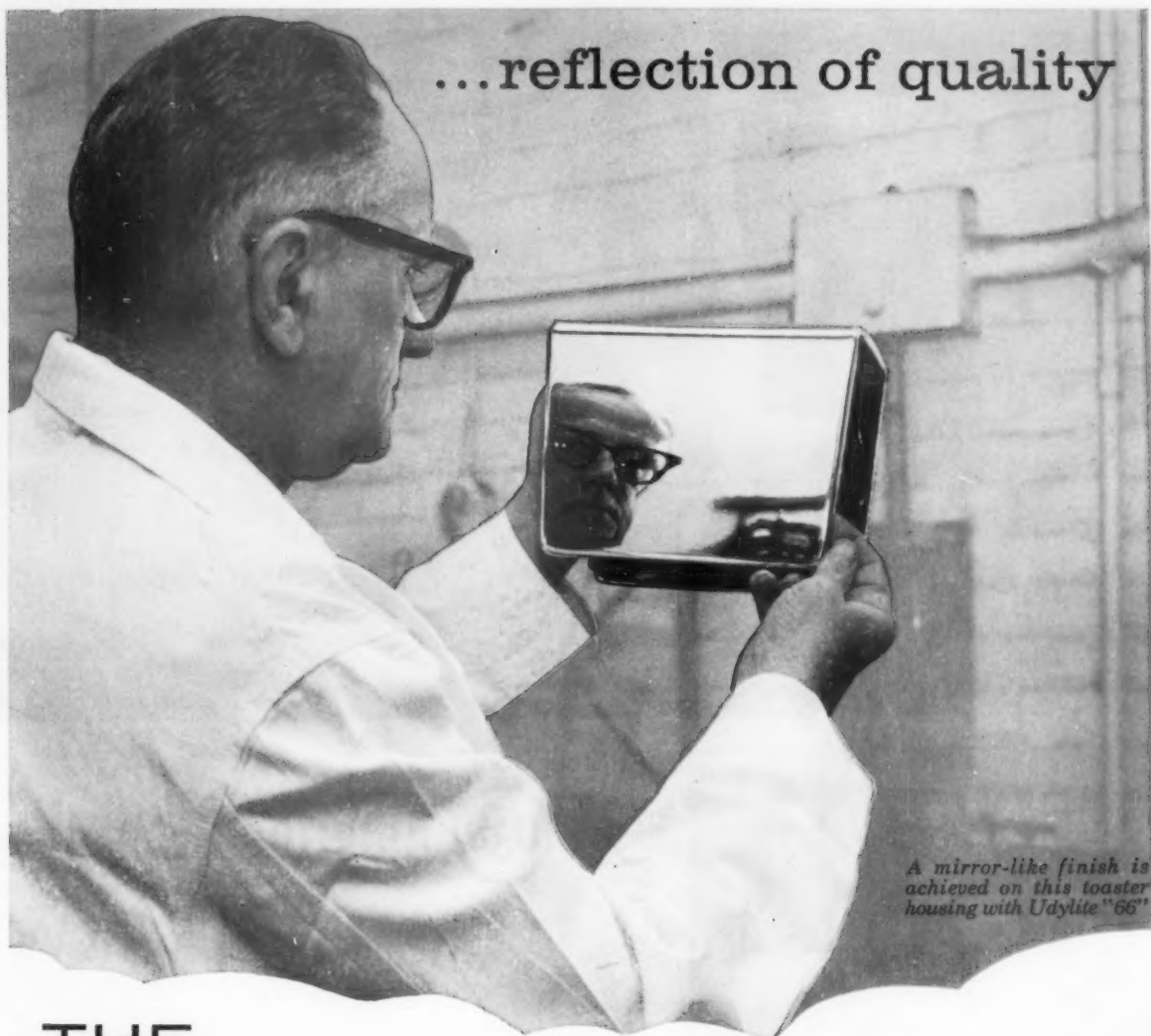
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AT THE FRONTIERS OF PROGRESS YOU'LL FIND AN AIR REDUCTION PRODUCT • Products of the divisions of Air Reduction Company, Incorporated, include: AIRCO — Industrial gases, welding and cutting equipment • AIRCO CHEMICAL — vinyl acetate monomer, vinyl stearate, methyl butynol, methyl pentynol, and other acetylenic chemicals • PURECO — carbon dioxide—gaseous, welding grade CO₂, liquid, solid ("DRY-ICE") • OHIO—medical gases and hospital equipment • NATIONAL CARBIDE—pipeline acetylene and calcium carbide • COLTON—polyvinyl acetate, alcohols, and other synthetic resins.



...reflection of quality

A mirror-like finish is achieved on this toaster housing with Udylite "66"

THE INCOMPARABLE "66"

Udylite's Bright Nickel Process "66" is sweeping the country with new installations and conversions to provide a truly incomparable plate with almost unbelievable ease of operation. The color of the process alone, sells "66" in any comparison.

The production of your existing equipment can be *greatly increased* with the introduction of Process "66". Its outstanding qualities include exceptional levelling ability and remarkable ductility for so bright a finish.

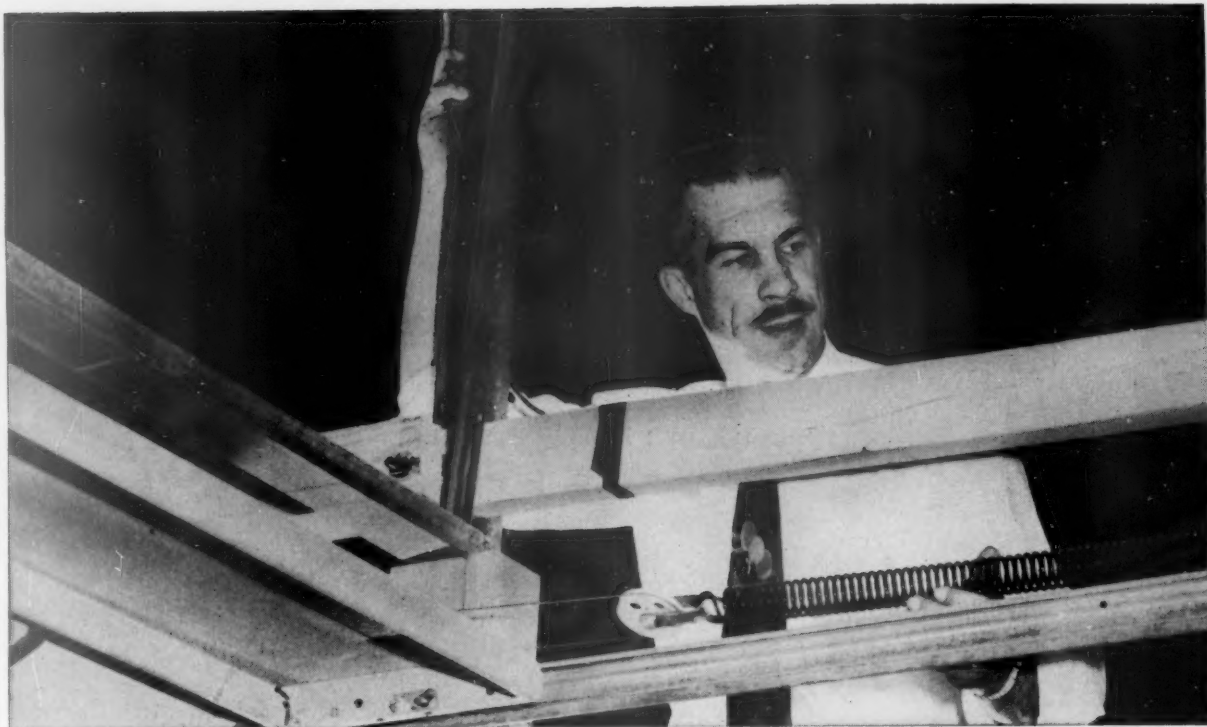
In addition, Process "66" has overcome the problems

previously considered inherent in plating over semi-bright nickel and, it is unusually receptive to chromium. You'll find that the amazing adaptability of this very bright finish makes it suitable for your finest work . . . moreover it will save you money.

A phone call or letter will start Udylite's "66" Bright Nickel process on its way to help you improve your production. If it sounds too good to be true, just send us a sample of your product . . . we will be happy to test-plate it for you with Incomparable "66". Act TODAY!



SUPER "66" For even greater brightness and levelling where absolute maximum ductility is not demanded, Udylite's SUPER "66" may be specified. You must see this finish to believe its brilliance.



At Steel Door . . .

USS American Springs
thanks to AS&W



In the American Steel & Wire Fatigue Laboratory, a technician runs tests on a USS American Spring, designed for Steel Door use. On the basis of this test a change in hook design was recommended to give longer spring life.



A Steel Door workman assembles a Berry One-Piece Door. This company uses steel exclusively for all doors because of its many consumer advantages. Steel is stable, won't warp or swell. Steel doors need less maintenance and preparation, and steel doors are easy to operate.



This close-up shows the improved hook on the extension springs supplied by American Steel & Wire for the Steel Door overhead garage doors.



stretched 31,000 times and still going strong ...

Spring Engineering Research Service

The Steel Door Corporation, Birmingham, Michigan, is the world's largest manufacturer of residential garage doors. For the production of these doors they use about 150,000 USS American Springs every year. Steel Door asked American Steel & Wire for a statistical evaluation of the fatigue life of the extension hook-type springs they use. The AS&W Spring Engineering Research Service tested these springs in the Fatigue Laboratory and recommended a change in hook design.

So successful was this design change that the life of the springs has been materially increased. At the Steel Door plant a cycle test was set up using USS American Springs on an overhead door. At the present time these springs have completed over 31,000 cycles without showing any sign of failure. This is the equivalent of 25 years of normal usage.

Mr. Ralph Qualman, Advertising Director and Service Manager, says: "It is extremely important that the springs—especially those used on sectional doors where

the strain is greatest—have proper tension and a long life. American Steel & Wire supplies Steel Door with springs that meet their engineering specification and life expectancy."

If you have a spring problem or would like advice on the use of springs in your product, get in touch with our general offices in Cleveland, or any American Steel & Wire Sales Office. You can benefit from the knowledge of AS&W's Spring Engineering Research Service. The Service has been engaged in laboratory experiments of static and dynamic testing for 20 years and has accumulated invaluable data on stress and fatigue life of steel springs, while endeavoring to improve efficiency in the use of steel—from steel chemistry through product application—to more economically cope with today's rigorous demands. This accumulated knowledge of the AS&W Spring Engineering Research Service is at your disposal. *American Steel & Wire, 614 Superior Ave., N.W., Cleveland 13, Ohio.* USS and American are trademarks

American Steel & Wire
Division of



United States Steel

Columbia-Geneva Steel Division, San Francisco, Pacific Coast Distributors • Tennessee Coal & Iron Division, Fairfield, Ala., Southern Distributors • United States Steel Export Company, Distributors Abroad

Eastman APPLICATION MEETS REPEATED TESTS



Tests prove that Eastman couplings applied to super high pressure 4-ply spiral wire hose assure successful assemblies. Couplings hold well above minimum burst pressure.

PERMANENTLY ATTACHED COUPLINGS PROVIDE BOND STRONGER THAN HOSE ITSELF!

Increasing demand for greater power brought about the use of higher pressures in hydraulic systems. This not only calls for greater hose strength, but far more critical engineering in coupling design and application.

EASTMAN is contributing toward the development of the trend toward higher pressures—not only in the design and application of coupling to hose—but in the more exhaustive tests required to assure adequate safety under high pressure operations.

The actual photo above is typical of many tests in Eastman laboratories proving that the hose did not fail at the coupling—demonstrating that the coupling was designed and applied to form a bond which was stronger than the hose itself.

If you have an application requiring higher pressures, let our engineering department demonstrate the superiority and economy of Eastman applications, and quote on complete Hydraulic Hose Assemblies.

Eastman
first in the field

MANUFACTURING COMPANY

Dept. PM-8

MANITOWOC, WISCONSIN

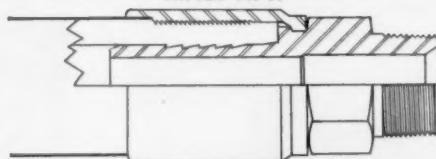
WRITE today for your copies —

Technical Bulletin 100—Medium Pressure Hose and Tube Assemblies, Couplings and Fittings for One Wire Braid Hose.

Technical Bulletin 200—High Pressure Hose and Tube Assemblies, Couplings and Fittings for Multiple Wire Braid Hose.

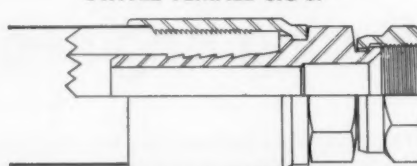


MALE NPTF



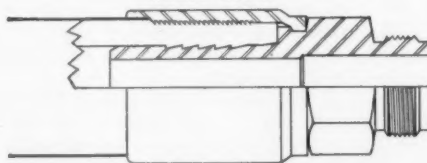
Catalog No.	Hose I.D.	Hose O.D.	Coupling I.D.	Min. Burst Pressure (P.S.I.)	Max. Wkg. Pressure (P.S.I.)
	(inches)				
8412-12M	3/4	1 1/8	1 1/2	20,000	5,000
8416-16M	1	1 3/4	2 3/8	16,000	4,000
8420-20M	1 1/4	2	1 3/4	12,000	3,000
8424-24M	1 1/2	2 1/4	1 3/4	10,000	2,500

SWIVEL FEMALE JIC-37°

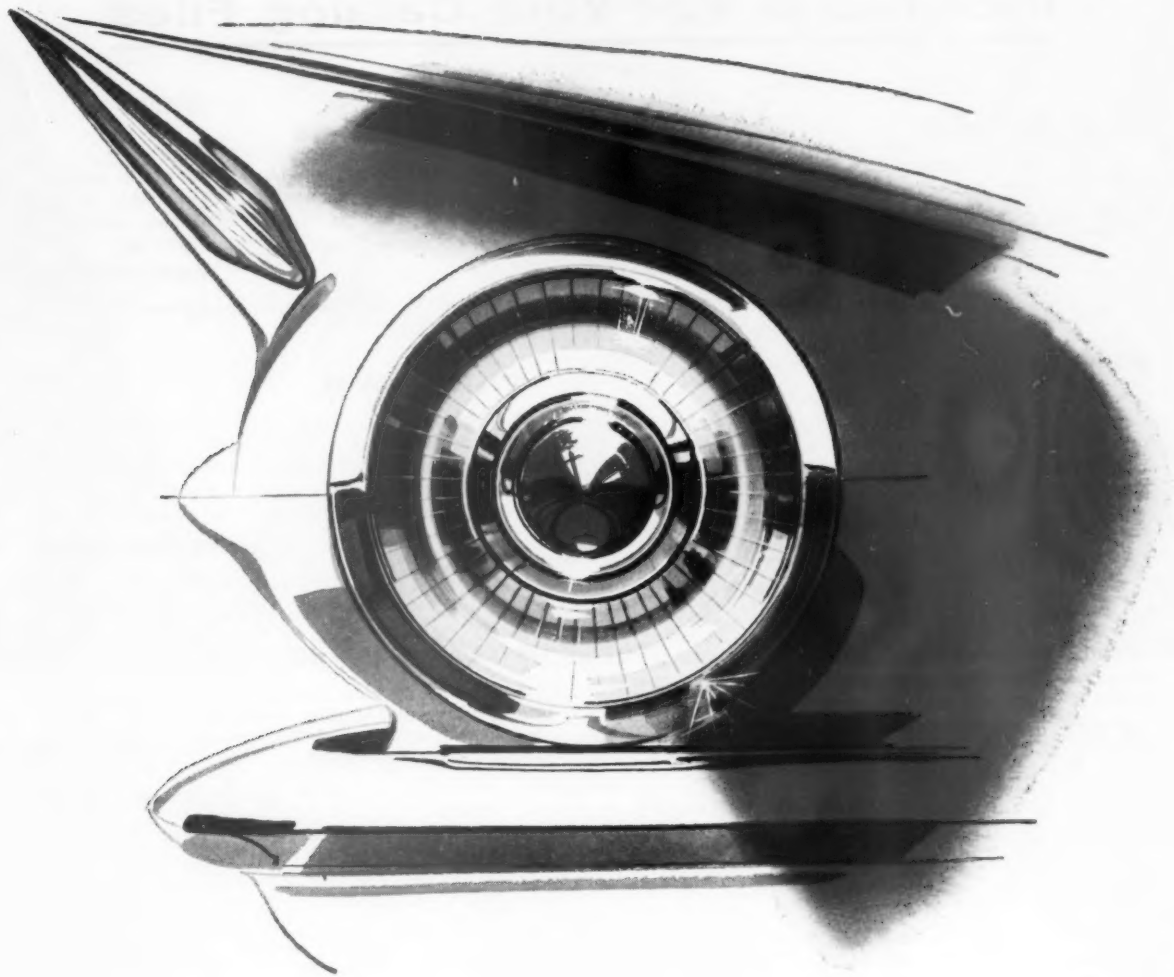


Catalog No.	Hose I.D.	Hose O.D.	Coupling I.D.	Min. Burst Pressure (P.S.I.)	Max. Wkg. Pressure (P.S.I.)
	(inches)				
8412-12FH	3/4	1 1/8	1 1/2	20,000	5,000
8416-16FH	1	1 3/4	2 3/8	16,000	4,000
8420-20FH	1 1/4	2	1 3/4	12,000	3,000
8424-24FH	1 1/2	2 1/4	1 3/4	10,000	2,500

MALE JIC-37°



Catalog No.	Hose I.D.	Hose O.D.	Coupling I.D.	Min. Burst Pressure (P.S.I.)	Max. Wkg. Pressure (P.S.I.)
	(inches)				
8412-12MH	3/4	1 1/8	1 1/2	20,000	5,000
8416-16MH	1	1 3/4	2 3/8	16,000	4,000
8420-20MH	1 1/4	2	1 3/4	12,000	3,000
8424-24MH	1 1/2	2 1/4	1 3/4	10,000	2,500



FIRESTONE FASHIONS "TRAFFIC STOPPERS" IN *fashionized* ALUMINUM PARTS

Call on the eye-catching brilliance of Firestone brightwork to put new competitive appeal into your automotive products.

Call on Firestone Fashionized® Aluminum for the finishing touches your new cars need. Call on the custom colors and qualities of this mass-produced medium to pass your closest customer inspection—to say "craftsmanship" down to the last detail.

Call on Fashionized Aluminum, and on Firestone's more than 50 years of fabrication and finishing experience. Call, too, on the production capacities and competitive prices that only an automated anodizing line can supply—in part sizes up to seven feet long. Your inquiries and inspections are cordially invited.

FIRESTONE FASHIONIZED ALUMINUM
FIRESTONE STEEL PRODUCTS COMPANY, AKRON 1, OHIO

Information For Your Catalog Files

AIR CONDITIONERS

Catalog No. 571 covers packaged air conditioners. The four-page two-color bulletin gives complete dimensions and specifications. Also contains detailed construction drawings and engineering information.

Acme Industries, Inc.

Write No. 1 on Inquiry Card—Page 32

ALLOYS

A folder on copper, brass, and bronze alloys. Contains a checklist of applications for the most commonly used alloys, as well as complete data on composition and physical and mechanical properties. Also includes industry and government specifications.

Bridgeport Brass Company

Write No. 2 on Inquiry Card—Page 32

BLIND RIVETS

Form 8-388 describes blind rivets for high-strength fastening. The illustrated two-color brochure includes strength and material specification data, plus photos and applications. Dimensional information is given in tabular form, and suggestions and recommendations are included.

Huck Manufacturing Company

Write No. 3 on Inquiry Card—Page 32

CASTERS

A 60-page catalog on casters and wheel products. Illustrates and describes several new items, including a complete series of spring mounted casters and V-grooved wheels.

Payson-Harris & Reed, Inc.

Write No. 4 on Inquiry Card—Page 32

CONVEYOR IDLERS AND PULLEYS

Bulletin No. 5980 covers belt conveyor idlers and pulleys. The 72-page catalog includes a 10-page section, with easy-to-read charts, that outlines a quick and accurate method for properly selecting belt idlers.

Chain Belt Company

Write No. 5 on Inquiry Card—Page 32

FASTENERS

A technical bulletin that discusses design and application of blind-type panel fasteners. A diagrammed sequence shows how the fastener can be inserted, tightened, and later removed. The eight-page bulletin also includes specifications and illustrations.

Standard Pressed Steel Co.

Write No. 6 on Inquiry Card—Page 32

INDUCTION HEATING

A vest-pocket size booklet shows in 16 pages where production economies are possible with induction heating. It covers extrusion, forging, brazing, heat treating and metal joining.

Magnathermic Corp.

Write No. 7 on Inquiry Card—Page 32

INDUSTRIAL GASES

A 32-page booklet covering production and commercial applications of industrial gases. Catalog ADC 892 contains photographs and drawings, plus a conversion data table. Also includes a table on physical properties of the various gases.

Air Reduction Sales Company

Write No. 8 on Inquiry Card—Page 32

MATERIALS HANDLING

A 16-page catalog describing and illustrating a line of materials handling equipment. Catalog 80-204 offers specifications and illustrations, in addition to an equipment selector chart.

Lewis-Shepard Products, Inc.

Write No. 9 on Inquiry Card—Page 32

METERS

Bulletin GEC-1400B provides information on single-phase and poly-phase watt-hour meters, watt-hour demand meters, meter sockets, and water-heater time switches. Includes a quick-reference selection guide and an index. Also contains product data, ordering directions, and pricing information.

General Electric Company

Write No. 10 on Inquiry Card—Page 32

MOTORS

Bulletin SDA 105 describes polyphase motors from ½ HP to 30 HP in frame sizes from 56 to 326U. Covers both open drip-proof and totally enclosed, fan-cooled explosion-proof types.

Peerless Electric Company

Write No. 11 on Inquiry Card—Page 32

POWER SUPPLIES

A two-page bulletin describing a series of transistorized power supplies. Contains specifications and selective features for 64 basic models, with continuously variable voltage ranges up to 300V.

Mid-Eastern Electronics, Inc.

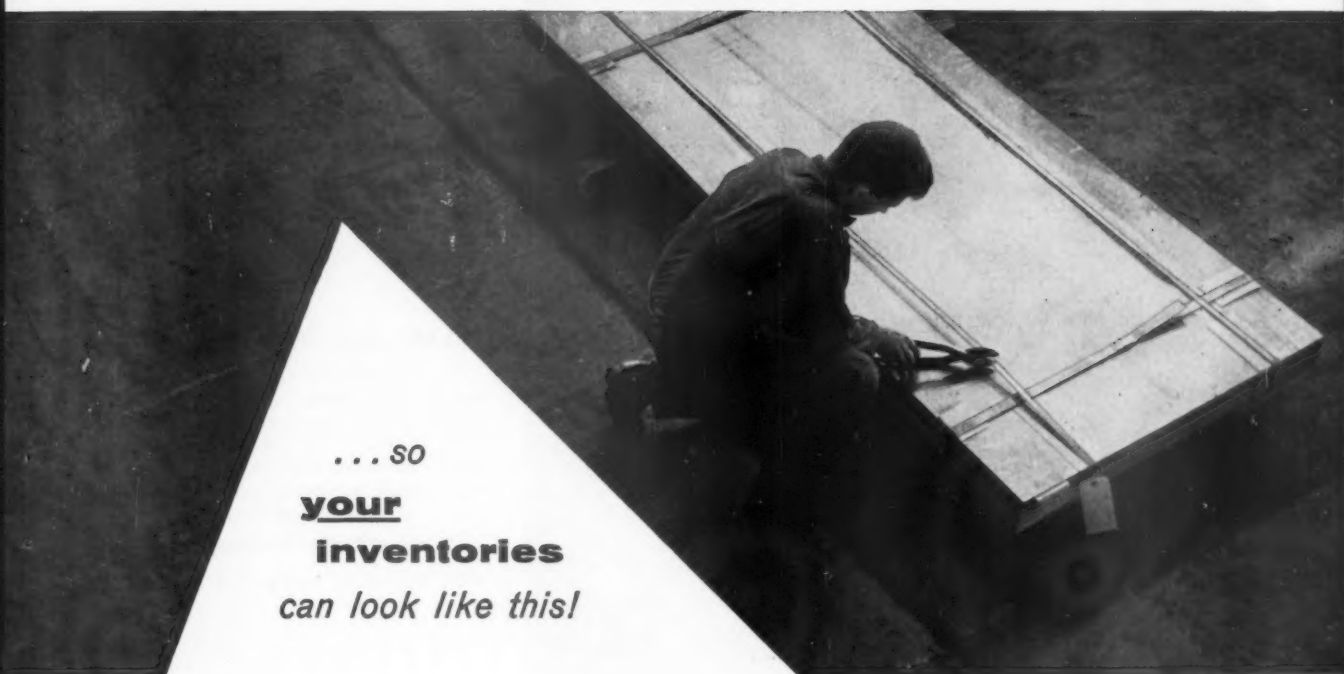
Write No. 12 on Inquiry Card—Page 32



*Your
steel service
center's
inventories*

*look
like
this*

Photos courtesy of The Universal Steel Company



*... so
your
inventories
can look like this!*

To cut inventory costs, make your Youngstown Warehouser your local "steel service center". Make full use of his complete local stocks, fast delivery service. His one-source service simplifies your purchasing and bookkeeping, too. You'll find him an efficient, time-saving, partner-in-production.



THE
YOUNGSTOWN
SHEET AND TUBE COMPANY

Youngstown, Ohio

Manufacturers of Carbon, Alloy and Tool Steel

For More Information Write No. 184 on Inquiry Card—Page 32

NEW *from* **SEALMASTER®**

ECONOMY



**LFT 2-BOLT
FLANGE UNIT**

PERFORMANCE



**LF 3-BOLT
FLANGE UNIT**

QUALITY

- Precision self-aligning one-piece unit. No extra assembly costs for you.
- Malleable housing provides maximum strength with light weight.
- Permanently sealed — prelubricated with high grade lubricant.
- Nothing of comparable value in low price field.
- Reversible for flush or recessed mounting.

REVERSIBLE FOR FLUSH OR RECESSED MOUNTING



FLUSH MOUNTING RECESSED MOUNTING

AVAILABLE IN A COMPLETE SERIES







AVAILABLE IN SHAFT SIZES 3/8" THRU 1 1/4"

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WRITE FOR
BULLETIN
359



PLANTS LOCATED IN: LOS ANGELES, CALIF. • CLARKSDALE, MISS. • BELLEVILLE, ONTARIO
For More Information Write No. 185 on Inquiry Card—Page 32

Catalog Files

SPEED CHANGERS

Bulletin No. 96 describes miniature adjustable ratio speed changers. Lists various worm and spur gears, thumb screws, and levers.

Metron Instrument Company

Write No. 13 on Inquiry Card—Page 32

THREADING LATHES

Bulletin 1215 covers high speed, semi-automatic, single-point threading lathes. Describes controls for the machine and the complete threading cycle.

Gisholt Machine Company

Write No. 14 on Inquiry Card—Page 32

TRANSFORMERS

Catalog TR-60 covers industrial transformers. Lists over 1000 items and contains several new lines—including micro-miniature transformers for transistor applications.

Triad Transformer Corporation

Write No. 15 on Inquiry Card—Page 32

TURRET DRILLING

Catalog 1T contains construction and design features of turret drilling machines and work-positioning tables. Details of turret head, speed, depth and tapping controls, automatic cycle assembly, power index, and feed control are illustrated.

Brown & Sharpe Manufacturing Co.

Write No. 16 on Inquiry Card—Page 32

VALVES

Circular No. 574 describes bronze gate valves. The two-color, illustrated circular lists maintenance-saving features of a number of valves in the line.

Lunkenheimer Co.

Write No. 17 on Inquiry Card—Page 32

PURCHASING



Leatherneck Kraft Helps Meet a New Deadline Every Day at McCall Corporation

More than 50 of the nation's most famous magazines are printed by the McCall Corporation in Dayton, Ohio. Nearly 60 million copies go out every month either in individual kraft paper jackets or bulk wrapped bundles for newsstand sale.

The tight scheduling and shipping of this vast quantity of "perishable" reading is a masterpiece of good coordination and planning.

In an operation of this kind there is little tolerance for failure of suppliers to adhere to delivery promises.

Crossett Leatherneck Kraft by the carload rolls onto McCall sidings at precisely timed intervals.

This is a big customer. But the size of the order is not a factor in dependability of delivery. Every Crossett customer enjoys the same benefits of reserved machine time and regular delivery in all kinds of markets.

Ask your Crossett dealer listed at the right how you can become a part of this assured delivery program.



CROSSETT PAPER MILLS

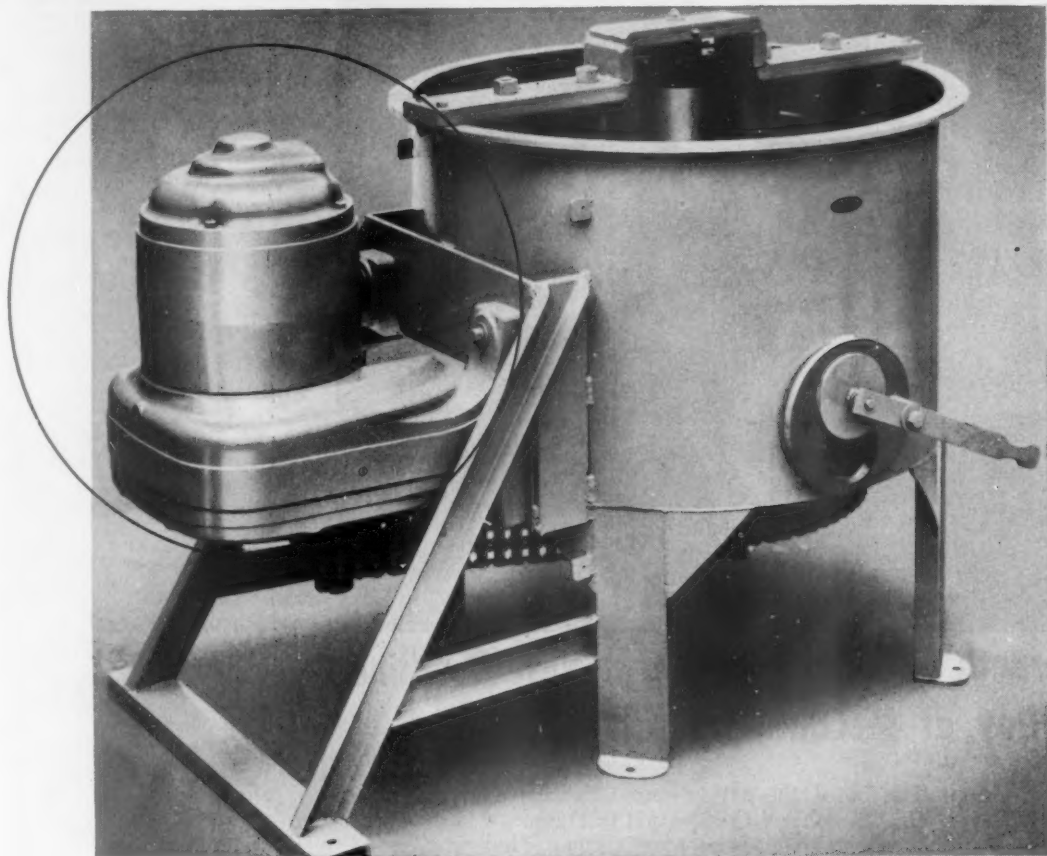
A Division of The Crossett Company, Crossett, Arkansas



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FOR SUBSTANTIAL SAVINGS IN MOUNTING SPACE... CROWN MACHINERY RELIES ON STERLING SLO-SPEED GEAR MOTORS!



HERE'S WHY!

As do so many leading original equipment manufacturers, Crown Machinery, Inc. incorporates Sterling Slo-Speed Gear Motors in its equipment used for chemical, paint and food applications.

Mr. Morris Cinaman, President, tells of the benefits resulting from the use of Sterling Slo-Speed Gear Motors with Crown units:

"Because of the compact design of the Sterling Slo-Speed Gear Motor, we have been able to save at least 10% in mounting space and to design our Crown Paste Mixer to take ratings from 5 to 15 horsepower. We are able to select the one best speed for each mixer's requirements. The positive oil seals, low maintenance, quiet operation and mounting adaptability make the Sterling Slo-Speed Gear Motor ideal for our machines. For these reasons, we can highly recommend these Sterling units."



Only STERLING SLO-SPEED Gear Motors provide these important advantages for efficient speed reduction:

- The unique offset gear construction eliminates wasted space. The more compact gear train design utilizes wider and larger diameter gears for greater strength and lower tooth pressure. The design of the gear case affords greater rigidity and strength.
 - The tooth profile and helix angle of Sterling gears provide quiet operation and multiple-tooth contact with low thrust on bearings. Sterling helical gears, used in combination with heat-treated alloy steel pinions, insure maximum service life and trouble-free operation.
 - Sterling positive oil seals keep oil in for maximum lubrication and leak-proof protection. Dirt and moisture are sealed out. Oil seals are impervious to chemical action of the lubricant.
 - Sterling's oil sealing method and dip-splash lubrication permit universal mounting—vertically, shaft up or down, or in any horizontal position.
- For additional information about the unmatched advantages of Sterling Slo-Speed Gear Motors for your application, please request a copy of Bulletin 191.



STERLING

ELECTRIC MOTORS, Inc.

5401 TELEGRAPH ROAD • LOS ANGELES 22, CALIFORNIA

Offices and stocks in all principal cities. Over 400 distributors throughout the country to serve you.

For More Information Write No. 187 on Inquiry Card—Page 32

PURCHASING

NEW TENZ-NUT®



preassembled for fast production...

Now — a spring washer preassembled on a hex nut — to save time in all types of assembly operations where the tested principle of bolt, nut and spring washer are required. Developed by Eaton-Reliance, this new fastener is now available for production use.

The spring washer — a modified Belleville, or "cupped" type — is firmly attached to the hex nut, yet it spins freely during application and removal. Tenz-Nuts are reusable.

The proven locking principle of the cupped-type washer, when combined with a hex nut, gives

you a versatile fastener for automatic assembly operations. It is particularly applicable where finished parts are being assembled and it is desirable to minimize surface marring. Tenz-Nuts may also be adapted as sealing nuts.

Write for our new Engineering Bulletin which fully describes Tenz-Nuts.

Eaton also offers a complete line of Keps® — hex nuts preassembled with tooth-type washers. Our fastener engineers will gladly consult with you on possible applications on request.



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NEW FROM CONTINENTAL

Electrically welded,
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flaring pails

nest to save storage
and shipping costs



Single seam construction

SINGLE
ELECTRICALLY
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gives leakproof
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Ideal for liquid roofing cements, paint and petroleum products, dry or powdered materials. Ask your Continental man for details.



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Canadian Division: 790 Bay St., Toronto, Ont.
Cuban Office: Apartado #1709, Havana

For More Information Write No. 189
on Inquiry Card—Page 32

Letters To The Editor

A LETTER TO BE PRIZED

Dear Sir:

Again you have earned high commendation in your effective effort to lead purchasing people into areas of higher contribution to their companies through the utilization of value analysis.

It is my observation that no other organization has so persistently and deviatingly hit the nail on the head year after year during this decade when value has been becoming of vital significance.

Your June 8 issue was outstanding.

Larry D. Miles
Manager, Value Service
General Electric Company
Schenectady, N. Y.

IT SHOULD BE A "HIGH C"

Dear Sir:

I read with interest your June 8 issue. On page 403 a case history appeared entitled, "Dictaphone Inventory Halves Cost for Drug Firm."

Our registered trade mark, "Comptometer" appears in the copy with a lower case c. Since this is damaging to our trade mark rights, I would appreciate your calling this to the attention of those in your organization who might possibly make reference to our company or product in the future.

R. F. Drake
Advertising Manager
Comptometer Corporation
Chicago, Illinois

CAN YOU HELP

Dear Sir:

This is the tank trailer division of Trailmobile, Inc. We are original equipment manufacturers of all types of tank trailers. These

trailers are custom built to customer specifications.

One of our customers has requested that we equip a trailer with finned steam coils, made of type 304 stainless steel. We would prefer to furnish 1 1/4", schedule 5, stainless steel pipe, and the fins must be approximately 3 1/2" square, approximately 1" apart. Larger and heavier pipe could be used, if necessary.

We shall very much appreciate any help you can give us in locating a source for this special material.

D. V. Swinney
Purchasing Agent
Trailmobile, Inc.
Springfield, Missouri

• It would seem that this order would be too small to be handled in mill quantities. Therefore, a warehouse would probably be the right place. We know of one warehouse that specializes in stainless steel and no doubt has all types and shapes. It is Ulbrich Stainless Steels, 1400 Old Colony Road, Wallingford, Conn.

FROM OUR FILES

Dear Sir:

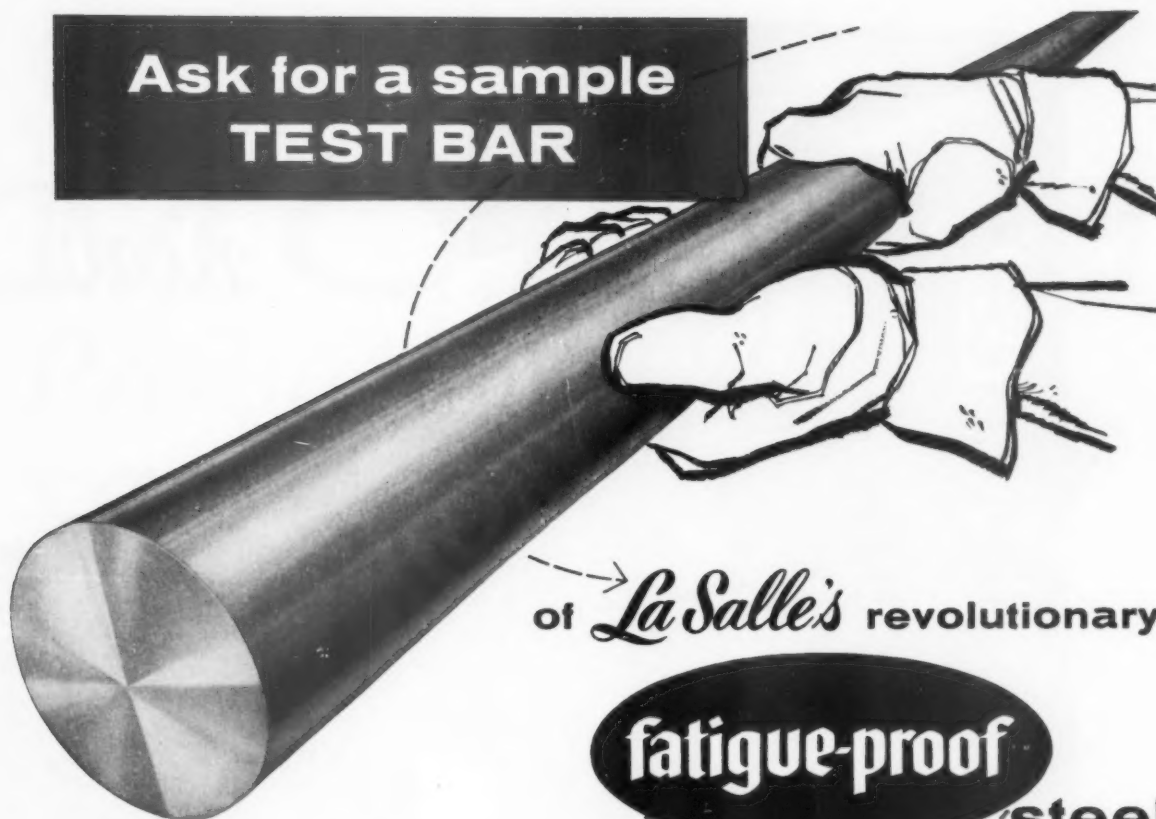
We are returning the editorial material covering welcome booklets which you so kindly loaned to us.

Thank you for your cooperation.

A. G. Binder
Purchasing Department
Celanese Corporation
of America
Newark, New Jersey

• PURCHASING Magazine is only too happy to share the vast information available in the permanent editorial files. In some cases we must ask that it be returned (as we did of Mr. Binder) so that we can loan it to someone else.

**Ask for a sample
TEST BAR**



of *La Salle's* revolutionary

**fatigue-proof
steel**

**The steel bar that has
high strength WITHOUT
HEAT TREATING**

Yes, La Salle invites you to test a sample bar of the remarkable new **FATIGUE-PROOF**. This amazing new material is its own best recommendation . . . as proven by the many original equipment manufacturers who have already tested (and are using) **FATIGUE-PROOF**.

If you are making parts requiring strengths in the tensile range of 140,000 to 150,000 psi, and want to eliminate the expense or problems of heat treating . . . if you want to save production costs with a bar that machines faster (25% faster than annealed alloys—50% to 100% faster than heat treated alloys) and gives you a beautiful finish, too . . . if you want to improve the quality of your product while saving money, send us a blueprint, drop us a note giving application details, or better yet . . . pick up your telephone and call a La Salle sales engineer (REgent 4-7800, Chicago, Illinois).

MADE BY THE *e.t.d.* PROCESS

Elevated Temperature Drawing

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Get your copy of "a new material," a 24-page booklet which gives detailed information on La Salle "FATIGUE-PROOF" steel bars.



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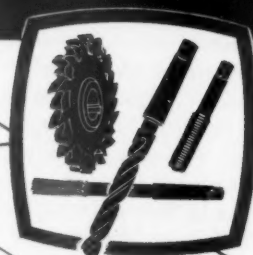
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Productive
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Versatile
Drill-Point
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Designed*



MORSE

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DRILL-POINT GRINDER

Now . . . you can accurately grind points on a profitable, high-production basis.

This new machine, conceived and built by Morse . . . has been thoroughly job-proved in the Morse plant. In fact, this one compact unit, with its attachments, will grind the following points . . .

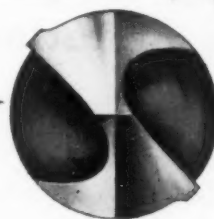


CONVENTIONAL



HELI-CENTRIC

and **SPLIT POINT...**
(CRANKSHAFT)

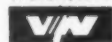


on a high-precision, high-production basis. No other machine can match this performance.

*For complete details,
write for new illustrated bulletin.*

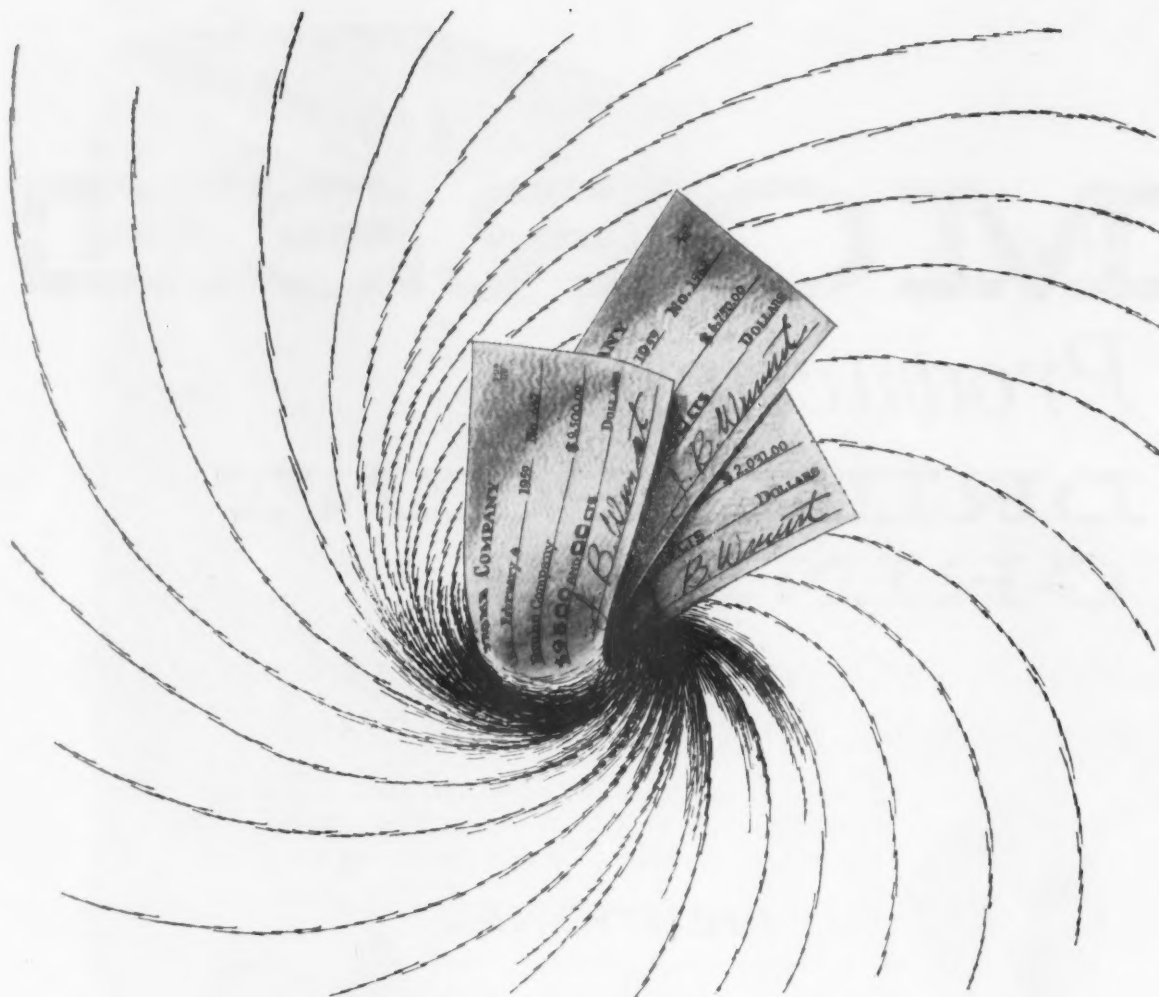
MORSE TWIST DRILL & MACHINE CO., NEW BEDFORD, MASS.

Warehouses in New York, Chicago, Detroit, Dallas, San Francisco.



A division of Van Norman Industries, Inc.

MORSE means "THE MOST"
in Cutting Tools



How you can improve your company's profit in assembly operations

Assembly costs are 50-75% of manufacturing charges. Direct labor charges are 81% of that figure while fasteners account for only 19%. Your biggest opportunities for profit improvement, then, lie in reducing the direct labor costs of assembly.

So the saving of a few cents a thousand on the cost of fasteners isn't so attractive when the failures show up. A unit pulled from the production line because of a stripped thread; rejects; more frequent inspections . . . all these eat up your profits.

We believe that quality is what smart industrial buyers really want. And we back up our belief with continuous research to find fasteners that will perform better, cost less, last longer and be easier to use.

It is this belief in quality which underlies our Profit Improvement Program for you — because nothing improves your profits like a quality product that helps you cut your costs.



**Profit
Improvement
Program**

In every phase of modern fastening and assembling — new products, new applications, new packaging, quality control — American's Profit Improvement Program spells more profit for you. Ask your American Screw Company salesman about these ideas you will find profitable.

The Biggest News in Fasteners comes from

American
SCREW COMPANY

Willimantic, Conn. • Detroit, Mich. • Chicago, Ill.

For More Information Write No. 192 on Inquiry Card—Page 32

PURCHASING



ECONOMICAL

The easiest way to make money is by saving money. And savings start when you cut tape application costs with SECURITY standard grade gummed tape. There's no secret to SECURITY's economical performance. We start with the finest raw materials, use an exclusive glue formula, maintain rigid quality control through each processing step . . . and scrutinize every inch of SECURITY with the watchful eye of AccuRay. The SECURITY glue coating is controlled with micrometric uniformity at the one level where sealing speed and holding power are greatest. When a standard grade gummed tape fits your needs, order SECURITY.

SECURITY STANDARD GRADE GUMMED TAPE

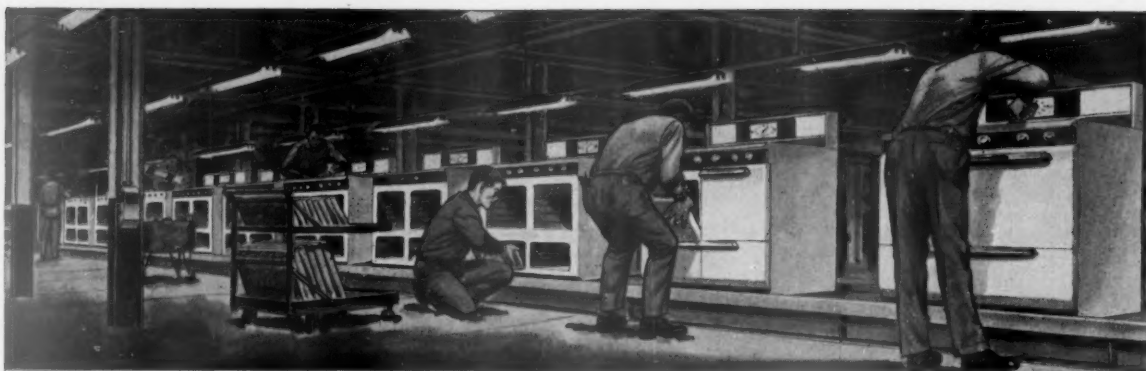


CENTRAL PAPER COMPANY • MENASHA, WISCONSIN

AUGUST 17, 1959

For More Information Write No. 193 on Inquiry Card—Page 32

55



*A good steel supplier
will know as much about your requirements . . .*



*as you know about
your customer's
requirements*

The Granite City Steel salesman assigned to your account spends much of his time studying your business, finding out what you make and how you make it. This knowledge enables him to give you more helpful, personalized assistance.

Is that the kind of steel service you're getting now? If not, remember that Granite City Steel is more than a dependable source of quality, flat-rolled carbon steel products. Our aim is to *serve* you . . . not just sell you.

GRANITE CITY STEEL

STEELMAKERS TO MIDDLE AMERICA

Ingots, Slabs and Plates • Hot and Cold Rolled Sheets • Porcelain Enameling Sheets • Electrical Sheets • Electrolytic Tin Plate • "Strongbarn" and Industrial High-Tensile Galvanized Corrugated Steel Roofing and Siding • Galvanized Culvert Sheets • Galvanized Flat Sheets.

HOME OFFICE: Granite City, Illinois • SALES OFFICES: Dallas • Memphis • Kansas City • St. Louis • Minneapolis • Houston • Moline • Tulsa



Purchasing People In The News

George W. Cook has been promoted to the newly created position of director of purchases and traffic for **Owens-Illinois Glass Company, Toledo, Ohio**. Mr. Cook has been director of purchases



G. W. Cook



R. J. Mayne



R. E. Knudson

since 1953. Appointment of **Robert J. Mayne** as general purchasing manager was also announced. Mr. Mayne and **Richard Knudson**, recently named general traffic manager, will report to Mr. Cook. **Smith L. Rairdon**, vice-president of the company said the establishment of a director of purchases and traffic will coordinate the two departments "for more effectively planning and performing procurement of essential materials and services for our growing business."

Mr. Cook joined O-I in the company's Alton, Ill., glass container plant in 1925 and moved to the general purchasing department in Toledo in 1937. He served as purchasing agent at O-I's Gas City, Ind., plant from 1942 to 1946 before returning to Toledo. He was named assistant director of purchasing in 1949 and director four years later. Mr. Mayne will head the department responsible for purchasing all materials and supplies for all divisions of the company. He joined the company in 1936 and served in purchasing and traffic departments in San Francisco and Oakland, Calif., until 1954. He served a year as purchasing agent for the Pacific Coast division. From 1956 until

1958 he was manager of purchasing and traffic for the division. Since March, 1958, he has been general purchasing agent for O-I Glass Container division in Toledo.

Burke Steel Company, Rochester, N.Y., has announced the appointment of **Donald H. Evory** as purchasing agent. Mr. Evory was



Donald H. Evory

formerly the controller of the company. He is a graduate of the Wharton School of Finance, University of Pennsylvania and has participated in graduate courses in purchasing at the University of Rochester.

C. R. Wensley has been appointed assistant purchasing agent of **Bell Helicopter Corporation**,



C. R. Wensley

Fort Worth, Texas. He was formerly supervisor of outside production. Mr. Wensley has been a Bell employe since 1943. He started as a riveter. In his new post he will have charge of outside production and research and development functions.

International Business Machines Corporation has announced the appointment of **Louis A. Howard** as procurement manager for its



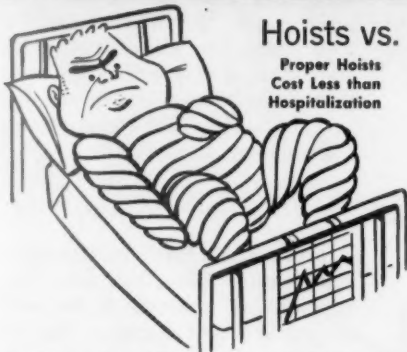
Louis A. Howard

Owego, N. Y. facility. He will be responsible for procurement and research and development subcontracting. Mr. Howard joined IBM in 1941 and served as a customer engineer in Indianapolis and Cleveland. He later transferred to production engineering and defense engineering. He has held several managerial posts, and earlier this year was named assistant for purchasing plans and programs at Owego. Mr. Howard is an electrical engineering graduate of the University of Illinois. He also attended Illinois Wesleyan University.

**SEE PAGE 190 FOR MORE
PURCHASING PEOPLE IN
THE NEWS**

Tuffy Tips

—on safe use of
Slings and Hoist Lines



Hoists vs. Hernia

Proper Hoists
Cost Less than
Hospitalization

A manufacturer said recently that 75% of his compensation claims were connected with hernia—a common hazard in heavy lifting. About the same time, we heard from the Ohio Bureau of Workmen's Compensation that the average hernia claim (circa 1957) was \$750. No need to stress the need for hoists instead of muscle for lifting tasks. Said "Occupational Hazards" magazine: (Hoists) with proper at-

tention, given slings and periodic inspections, will help substantially in reducing back injuries and hernia claims by reducing the strain on workers."

A Few Rules for Safe Use of Hoists and Slings

1. Use a proper size hoist—not human backs and muscles—for every heavy lifting job.
2. Never use load chains as slings. Chain links break easily after distortion.
3. Use the sling that's right for the job. There's a Tuffy Sling for every purpose.
4. When loading slings with more than 2 legs: load a 3-legged sling as though it had 2½ legs; load a 4-legged sling as though it had 3 legs.

Proper Fittings Give Slings Added Safety and Service Life

Union offers a sling fitting for every need. We recommend having them factory-fitted when you order your slings, but they can also be fitted in your own rigging loft. Shown here are two of a score of different fittings used on Tuffy Slings.



NEWCO STANDARD CHOKER HOOK:

Standard in design, but extra high in quality and safety. Castings are always smooth and clean. No cutting or chafing slings. This hook can be attached to the end of sling instead of the main body, thus allowing the main part of the sling to be free of fittings.



NEWCO PIPE HOOK: Precisely "tailored"

to the job of moving and laying pipe. High strength steel. Capacity of 3500 lbs. Pad at end allows threaded pipe to be handled without damage to threads. Eye opening is large enough to accommodate a shackle or thimble. Hook has a lifting handle for easy moving.



Made for Each Other: Tuffy Slings and Hoist Lines

Tuffy Slings and Hoist Lines make a top-performing team for every kind of hoisting work. Tuffy Slings are made of a patented, 9-part machine-braided wire fabric that's extra flexible, and isn't materially damaged by knotting or kinking. Tuffy Hoist Line is a spe-

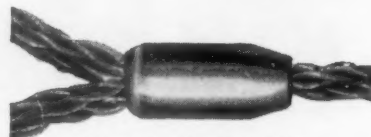


cial rope construction for use on all types of overhead cranes, derricks and clamshells—and wherever else an extra-quality, extra safe hoist line is needed. Reports from the field tell of Tuffy Hoist Lines running two and three times as long as ropes previously used.



Tuffy Kink-Resistance is Unmatched

Kinking is one of the worst hazards of wire rope and sling use. With ordinary wire rope slings, an acute kink results in serious damage and weakening that makes the rope unsafe for further use. With Tuffy, it's a different story. The super-flexible fabric is just about impossible to kink. If it does under exceptional conditions, the kink can be easily straightened out with no harm done.



Safest Ferrule Ever Made

The pressed-on steel ferrule is applied under great pressure. The ferrule metal virtually flows into voids between wires and strands of the fabric. Result: an eye splice with 100% of fabric strength, and a ferrule so smoothly tapered to the sling body that there are no abrupt edges or rough projections to snag or injure hands. And the extra service life, efficiency and safety of Tuffy's pressed-on ferrule are yours at no extra cost.

FREE! New Tuffy Sling Handbook

Revised and enlarged edition. Covers all the bases in selection and use of Tuffy Slings and fittings. Gives types, dimensions and rated loads. Includes safety-approved hand and whistle signals in operation of various equipment. Send for your copy now. Write Union Wire Rope Corporation, 2282 Manchester Ave., Kansas City 26, Mo. Specialists in high-carbon wire, rope, braided wire fabric and stress relieved wire and strand.



Your Tuffy Distributor is Ready to Help You with any Sling or Wire Rope Problem

UNION  **Wire Rope**



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John F. Sincere



John Van de Water

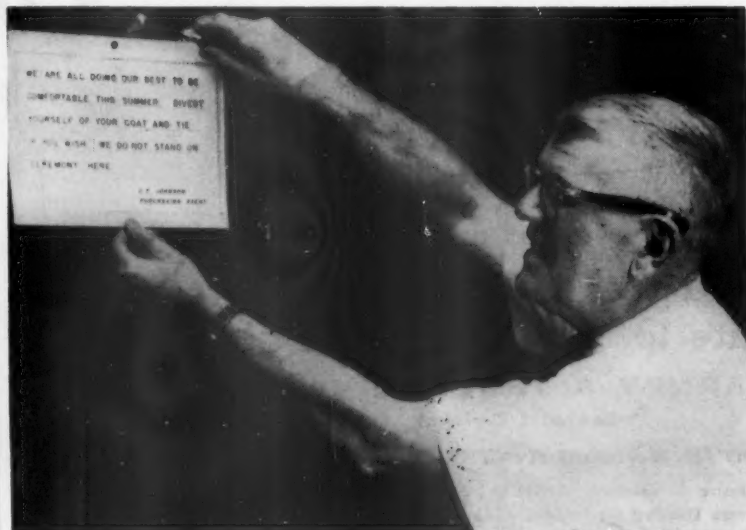
YOU'LL READ about the appearance of some new faces around PURCHASING Magazine's editorial office in A Message From the Publisher (see page 67). Just so you'll recognize them at meetings and conventions, or when they call on you, we're printing the best available photos of two of them on this page. But we're

omitting two of the people mentioned by the publisher. Old Dean (oops, beg pardon, Doctor Ammer) is so well known in the purchasing profession by now we'd just be wasting space to run his formal portrait. And Lou De Rose, new editorial marketing consultant, appeared in our August 3 issue.

SHIRTS, unstuffed and sleeveless, are the order of the day this hot summer at The Baird Machine Co., Stratford, Conn. Purchasing Agent C. F. Johnson recently placed a sign in Baird's reception room that reads:

"We are all doing our best to be comfortable this summer. Divest yourself of your coat and tie if you wish. We do not stand on ceremony here."

As shown in the photograph below, Johnson was the first to follow his own suggestion. We guess it's too much to expect, but we'd like to see this courteous treatment extended into the beverage area. One of the nicest interviews we have had with a P.A. was carried on over a tall glass of iced tea one steamy August day a couple of years ago. Hasn't happened since, though.



For More Information Write No. 197
← on Inquiry Card—Page 32

UNION OIL Company management picked the right man to present industry's views on wage hikes and taxes to the public. The man is Charlie Perkins, Union Oil's manager of purchasing and president of the Purchasing Agents Association of Los Angeles. Charlie knows something about pricing, to say the least. This is what he had to say in a full-page ad that appeared in several national consumer magazines:

"Foreign manufacturers now compete sharply with our own industries. And they do so *without* two handicaps every American business faces today.

"One: Wage hikes *not* based on increased productivity. These result in continually rising prices for U.S. consumers and ever-mounting production costs for our manufacturers.

Charlie Perkins

How wage hikes and taxes threaten your job



Union Oil Company OF CALIFORNIA 70

"Two: Growing taxes. Each year taxes take more of industry's dollars. This, too, is reflected in higher prices to the consumer.

"It makes you wonder. If we price ourselves out of world markets, what's next. If we don't stay competitive, isn't that the same as pricing you and me and all of us right out of our jobs?"

Some figures are offered to back up Charlie's argument. And there is a small note inviting readers' comments, to be sent to Chairman of the Board, Union Oil Co., Los Angeles 17, Calif. It might be a good idea to comment—and add your compliments for the way Union Oil recognizes purchasing's insight into today's economic problems.

AUGUST 17, 1959

WIRE FILTER CLOTH

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When Purchasing**

**PARTS FABRICATED
WITH WIRE CLOTH**

TESTING SIEVES

TESTING SIEVE SHAKERS

Make **NEWARK** your source of supply for Wire Cloth and Wire Cloth Products. We weave all of our own cloth from which we fabricate parts for our customers...thus insuring both quality of cloth and accuracy of construction.

Newark Wire Cloth is available in all standard widths, all meshes, all commercial metals...the Newark line is a complete line even up to 400 mesh cloth. And if your problem is one of parts design, our engineers will be glad to aid. May we quote on your requirements?

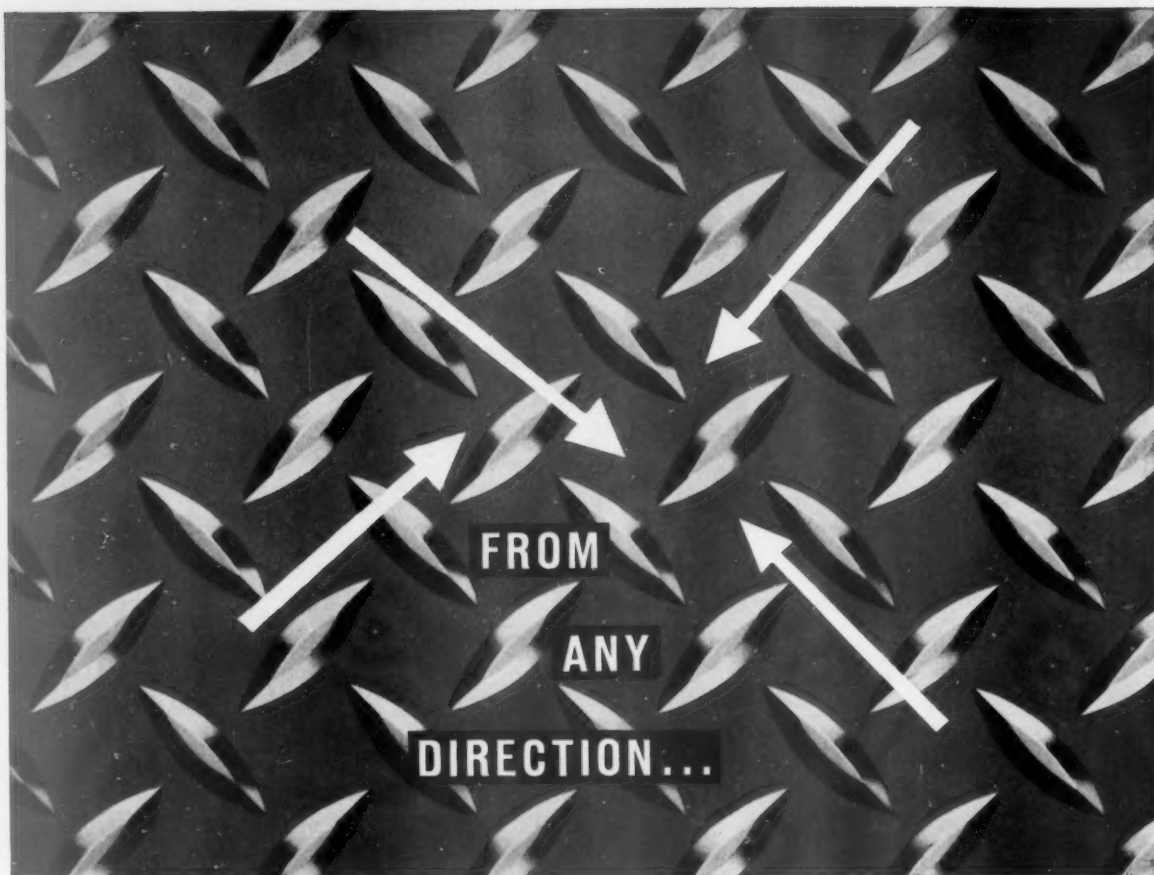
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Alan Wood Super Diamond floor plate ...is easy to clean

Sweep it . . . hose it . . . mop it . . . at any angle, A. W. Super Diamond is easy to clean. No pockets to hold dirt or water . . . the unique design of this rugged floor plate lets water drain quickly in any direction.

A. W. Super Diamond is easy to fabricate, too . . . it can be sheared, welded, formed, and easily matched. The arrangement of the exclusive pattern allows you to bend it at any place. This is a heavy duty floor plate that will last for years . . . and provide a safe, non-skid footing.

For easy cleaning . . . for easy fabrication and installation . . . for long wear . . . specify A. W. Super Diamond. Write for Bulletin SD-N ;

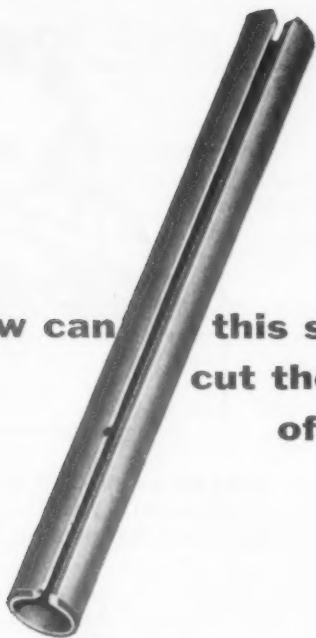


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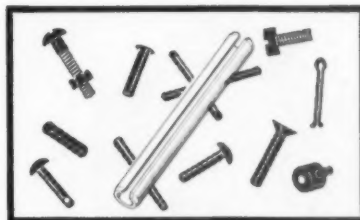
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How can this simple fastener
cut the cost
of your product?



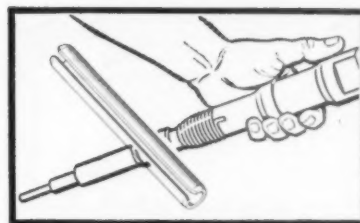
Rollpin aids standardization and reduces inventory

Rollpin readily replaces taper pins, grooved pins, straight pins and set screws; it can be used as a locating dowel, hinge pin, cotter pin, stop pin or, in some applications, even as a rivet. Thus, when you standardize on a Rollpin you can drastically reduce the variety of fasteners in your inventory—save money in purchasing, storage space and stock handling.



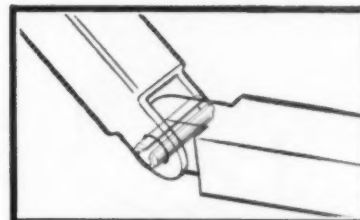
Rollpin simplifies production processing . . . saves man-hours

When you use Rollpin you can eliminate costly precision drilling, or tapping operations. And there's no need for any secondary locking operation—such as lock wiring or peening. That's because Rollpin is a slotted tubular steel spring whose chamfered ends drive easily into standard production-drilled holes, compressing as driven. The spring tension against the hole walls retains Rollpins securely against severe vibration. Independent studies have shown that installed costs of Rollpin are as much as 91% less than those for a dowel pin or 95% less than the installed cost of a taper pin.



Rollpin simplifies product maintenance

Only a drift pin or standard punch is required to remove a Rollpin. The slotted tubular shape and the spring action principle do not damage hole walls or enlarge the original hole diameter. Consequently the same pin is easily re-inserted and can be used again and again. Mail our coupon today for the complete Rollpin story.



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AUGUST—Selected supplier of anhydrous ammonia . . . assuming that service included technical advice "during use".



LATER—Ammonia system installed without supervision . . . not tested by supplier . . . some parts not designed for ammonia use.



STILL LATER—Had improper atmosphere mixture . . . undesirable case properties . . . sooting and added handling of "finished" parts.



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Highlights of This Issue

✓ From A Purchasing Conference

From the transcript of a three-day purchasing conference recently held by a large multi-plant company, we present abstracts of talks on some basic purchasing problems. Among the subjects covered:

Purchasing and Management—The president looks at purchasing's strengths and weaknesses and comes up with some suggestions to help it make the management team.

Visiting Vendors—A manufacturing executive offers some hints on whom to meet and what to look for in suppliers' plants.

Blanket Orders—A plant P.A. describes how an old standby has saved time, money and effort.

Foreign Purchases—The manager of the company's international division analyzes some of the opportunities and dangers involved in buying parts and materials abroad. See p. 70.

✓ From The Mysterious East

Be good now kiddies and we'll tell you a story. It seems there were some "wicked men" and a heroic youth. Their paths crossed in the purchasing department and there was a lot of excitement for a while. The youth, who calls himself Ali Baba, figures he was jobbed by the nasty men he was selling to. We present his side of the story because we think it shows the dangers of analyzing yourself out of value—but also because we are sure Ali Baba made out all right in the end. He's still in business and quite successful. See p. 80.

✓ A Look At Some Purchase Orders

Forms Forum in this issue features five different purchase orders. They come in assorted sizes and are designed for different requirements. They may offer you some ideas to use on your own P.O. See p. 88.

✓ New Faces, New Friends

We're beefing up (figuratively, of course) our editorial staff and therefore our service to you. A special message from the publisher tells about the changes and additions. See p. 67.

In Future Issues

Watch for two important studies of new ideas in purchasing practices and policies: those of Merck & Co. in the Sept. 14 issue; those of Western Electric in the Sept. 28 issue.

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A Message from the Publisher

Staff Additions Broaden Service To Purchasing Agents

A LOT goes into the success of any enterprise. In the magazine business you need, for example, a good, aggressive business staff and a strong circulation department. But neither these nor any other aspects of the business mean much unless you have the one really significant element—editorial quality.

Editorial quality isn't something you develop overnight. It is the result of years of hard work and dedicated effort on the part of skilled, experienced people. You know you have it when year after year you win the loyalty and respect of thousands and thousands of readers in the field you represent.

We set some rather high editorial standards for ourselves several decades ago. The confidence and support we've had from you indicate we have been successful in maintaining them. We don't intend to stand still, however. We plan to continue enlarging and improving our service to readers.

That's why I take a good deal of pride and satisfaction in telling you about some important new developments in our editorial staff, developments we feel sure will provide you with a better, more helpful Purchasing Magazine. Here's what has happened recently:

John F. Sincere has been appointed Midwestern Editor, with headquarters in Chicago. John graduated from the University of Illinois with a degree in ceramic engineering. After service as a research assistant at the university, he entered the technical publications field and held editorial posts on *Ceramic Industry* and *Brick and Clay Record*. He was technical editor of *Metal Products Manufacturing* for two years before joining Purchasing Magazine.

John Van De Water has been appointed Technical Editor. He comes to us from Worthington Corporation where he spent nine years as works buyer and general buyer (since 1956). John is

familiar to our readers as the author of a number of fine articles on various purchasing subjects. He holds a degree in electrical engineering from Brooklyn Polytechnic Institute and a B.S. in business administration from New York University.

Louis J. De Rose is our new Editorial Marketing Consultant. Lou, whose background and new responsibilities were detailed in our August 3 issue (p. 70), is one of the country's outstanding purchasing educators.

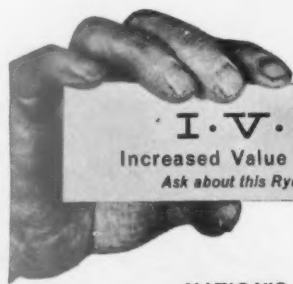
While welcoming these new members to our editorial team, I'd like to take special notice of the accomplishments of an editor who has established an outstanding reputation in the five years he has been with us. Executive Editor **Dean Ammer** has just received his Ph.D. in economics from New York University. Dean (it's a little hard getting used to calling him Doctor) adds the new degree to the B.S. he received from Massachusetts Institute of Technology, and the M.B.A. earned at N.Y.U. This is another high point in a career that takes in industrial purchasing, value analysis, production planning, and the writing of numerous articles and reports on all phases of procurement. Dean's Ph.D. dissertation, by the way, is on materials management and he is now writing a book on the same subject.

These developments bring us new experience, new knowledge, and new enthusiasm to help us in our work on behalf of purchasing.

Ray Richards
Ray Richards
Publisher

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Which Governs Best?

A GROUP OF economists made news a few weeks ago by proposing that price and wage increases in basic industries be subject to compulsory fact-finding. Using the facts found, they said, the President could declare "that a price and/or wage increase was contrary to the public interest."

The economists—all of the liberal school—added: "We reject the notion that that government governs best which governs least. The Federal Government is *our only instrument* for guiding the economic destiny of the country." (Italics added.)

Hardly anyone now challenges the idea that government should intervene in economic affairs. To be sure, the myth of "pure competition" is regularly and ardently proclaimed in banquet speeches and other public manifestoes. But who among us at one time or another hasn't demanded or benefited from these things: tariffs; public works; money and credit controls; subsidies; loans to small business; regulation of the utility, transportation and communications industries?

How far are we willing to let the government go? A lot depends on our personal political persuasion—and even that weakens when our personal ox is gored. Traditionally free-traders, some of our more responsible labor leaders are now pushing for "remedial legislation" (in plain English, tariffs) to protect the jobs of union members threatened by a flood of foreign goods. Manufacturers who shudder at the thought of federal price controls have no qualms about supporting price-fixing federal fair trade laws.

There's nothing wrong or even dangerous in this. Pressure groups are not only permissible in a democracy, they're an essential part of the democratic process. But they and a lot of other benefits of our democracy will vanish if we accept the seven economists' dictum that the Federal Government is the "only" instrument for guiding the country's economic destiny. We'll end up with a completely nationalized economy, with price ceilings, tariffs and other controls automatically imposed by a gigantic bureaucracy with each slight swing in the business cycle.

PURCHASING MAGAZINE
AUGUST 17, 1959

That government governs best that doesn't try to govern everything. In economics, let's stick with competition a little bit longer.

Paul V. Farrell



A New Look at Some **Basic Purchasing Problems**

The recent first annual "Purchasing Conference" of the Rockwell Manufacturing Company covered a lot of ground. During the three-day session, plant P.A.'s from all over the country heard talks and held discussions on important aspects of the buying job. We present here abstracts of a number of talks on basic purchasing subjects presented at the conference, which was under the general direction of C. Warner McVicar, director of purchasing and traffic. Individual speakers and their subjects are identified on the facing page.

What It Takes to Make

The Management Team

IN OUR 1959 business outlook, intelligent procurement can mean the difference between a good year and a poor year.

We feel that the purchasing department is part of the management team in each plant just as it is at headquarters. However, we can't issue a ruling that every purchasing man is to be put on the team. It's not a question of appointment; it's a question of your ability. That's why, apart from a few key positions, the make-up of the management team varies considerably from plant to plant. It varies in direct proportion to the ability of various departments to make the grade. Where purchasing men have not made it, it's purely because they have not yet demonstrated the ability and the desire to make an important contribution.

The opportunities for men in purchasing to become valued members of management teams are greater now than ever. They will be even greater in the future. That's because of one plain, unvarnished truth. Profit margins are shrinking and will continue to shrink. Labor costs are more likely to go up than down. The cost of materials is on the upswing and we see no tax relief in sight. That leaves just one method of maintaining our profit margins—we must cut costs.

Where Can We Cut Costs?

This, of course, is not new to us. We are constantly considering how we can get greater productivity through automated processes that reduce our direct labor costs. We have already greatly reduced our indirect labor costs

through sweeping reforms and refinements in our overhead operations and in the structure of our sales force.

But there are limits to what we can do in these areas. Fortunately, there is still one area in which more progress can be made and where progress is even more rewarding—purchasing. It is a fact that out of every production dollar, at least 50 cents is spent on items purchased. As little as a 1% reduction in our purchasing dollars spent gives us a profit increase that is immediately apparent. That is the kind of contribution you can make, and must make, if you are ever to become part of the Rockwell team. The responsibility for Rockwell profits must sit as squarely upon your shoulders as it sits on those of our plant managers and our sales managers. Even the most production minded plant manager will agree that purchasing, which they used to consider as a minor department, is now a major third party in the profit picture.



President W. F. Rockwell, Jr.: "If a P.A. is content to be merely a clerk who receives requisitions and buys the materials specified he will always be treated like a clerk . . . and find himself left behind."

For example, take a hypothetical case: A firm is doing a 50 million dollar a year business, is spending 50% of the sales dollar on purchases and is making a profit before taxes of 10% of the sales dollar. A 10 million dollar increase in sales would be a tremendous thing and cause for a great deal of celebration. However, a one million dollar decrease in the costs of purchases would have the same effect on profits as would the 10 million dollar increase in sales. In fact, many firms including our own are finding that a 4% saving in the cost of purchases is equal profit-wise to a 20% increase in sales. So you can see, you're not just playing for pennies; this is a big game, and we're playing it for keeps.

"I'm Ready, Coach!"

So you may say, "Fine tomorrow I'm going to go home and take my place on the team!" Not so! No coach would make a varsity

The articles in this section are abstracts from talks made by the following Rockwell executives: W. F. Rockwell, Jr., president (Purchasing and Management); W. T. Gettig, assistant V.P.-manufacturing, Meter and Valve Division (Plant Visits); A. S. Bradnick, plant purchasing agent (Blanket Orders); Eric Newman, manager, International Division (Foreign Purchases); W. L. Neely, assistant treasurer (Insurance); P. C. Kreuch, V.P.-sales, Meter and Valve Division (Salesmen).

quarterback out of an unknown player. You can't join the team; you've got to be elected to it. The fact that you hold such a vital position is not an automatic guarantee of your rightful place in management. You've got to prove yourself first.

How do you do it? You begin by tearing down fences you may have built around your desk. An isolation booth is a fine place for a man on a quiz program, but it's no place for a man who wants to grow in his job. There is always a danger in any job of building a little walled off empire in which you sit and say to your associates, "You handle your job and I'll handle mine." That thinking builds an introverted sense of responsibility rather than the extravertive sense of responsibility that a management man must have.

I'd like to stick my neck out and cover an area which can be a fertile one for a man who wants to grow in his company. Inventory responsibility tends to be a rather nebulous thing in many plants. Primarily, it is the concern of the plant manager who has a myriad other calls on his time and attention and must, therefore, delegate this responsibility to various department heads. Department heads in the

main do not have enough perspective on the overall plant picture to key their inventory control functions so that they accomplish the most overall good.

Obviously, a better job could be done if responsibility for inventory were centered on one man. Of all the people in the plant, I can't think of anyone in a better position to keep the overall plant picture in mind, both present and future, than the purchasing agent. He is the man who spends the hundreds of thousands of dollars that create the inventory in the first place.

It's a question of correlating unit purchases with dollar purchases. The purchasing agent should pre-determine from annual sales and production forecasts and from the turnover required by his plant management what the dollar value of the inventory should be at all times for most efficient operation. He should then keep an eye on the dollar value of his plant inventory every time he spends a dollar.

He should go further. It is another truism that you can sometimes, particularly in the metal-working business, make as much money buying as you can selling. For example: In the die-casting business, if a purchasing agent has a good many inventory dollars invested in aluminum ingot, and the price drops, loss on inventory can be greater than the profit on the product.

The converse is also true. There is great need for intelligent buying by men who know their markets, its trends and its in's and out's and can correlate that knowledge with their own buying schedules.

If a purchasing agent is content to be merely a clerk who receives the requisition and buys the materials specified, he will always be treated like a clerk, and he will find himself ultimately cast aside or left behind.

Reach Out Beyond

The normal duties are very clearly spelled out in our purchasing manual. But I feel that your sense of responsibility should go beyond the printed pages of this manual into areas where no one can lay down instructions as

to just what your duties are. You can't afford to be ignorant of a purchasing requisition before it reaches your desk and unconcerned about it after it passes your desk. You've got to concern yourself with it long before that point and long after—particularly where the material becomes inventory.

I have said nothing new or particularly startling. It has all

been said before or written before in one way or another. The important fact is that it has been said again. We hope that if it is said enough you will not only know it, you will believe it—and act on it.

Call this if you will a plea for purchasing men in this company to take steps that need to be taken to make the management team. You are our great white

hope in the cost cutting and inventory control activities that will enable us to maintain reasonable margins of profit, without sacrificing the quality of our products. Remember, the best way to assure yourself a place on your management team is to constantly increase your responsibilities to management so that management will, in turn, increase its dependence upon you.



Plant Visits Pay Off . . . If

You Know What to Look for

THE OBJECT of visiting a vendor is to know more about his business than his representative with whom you normally deal. To do this you should look for several things before and during your visit.

Before dealing with a potential vendor, find out everything you can about the financial structure of the company. Review all available material—including a D & B report. Acquaint yourself with the company's organization. Who is responsible for things in which you are interested? Who are the people you wish to visit while in the vendor's offices and plant?

Upon arriving at the supplier's, you will probably meet the sales manager. Ask him to introduce you to the president or at least to the ranking executive for your first conference. During this discussion you can increase your knowledge of the background, general organization, history, policies, and plans of the company. You can also get information on labor relations, personnel policies, and financial responsibility. Then point out to the executives the things you expect any vendor, and particularly this one, to provide.

Following this discussion, you are ready to get into the details of your plant visit. What are the things you should look at, and who are the people with whom you should talk?

How Are Prices Set?

Talk to the sales manager again and learn in detail the basis used for quoting prices and delivery. It may be possible to meet and talk with other department heads responsible for seeing that your orders are processed. This would include order processing supervisors and the production manager. The handling of orders, how they are put into production schedules, and how they are followed up are important. In these areas you can make personal contacts which can be helpful in the future.

Look at the raw material inventory and estimate whether it would be adequate to serve your needs. Learn the company's policy about maintenance of this inventory. What are their lead times for replacing the inventory? Will they be in a position to have the materials necessary to take care of your orders as they are entered?

Learn who the supplier's sources of supply are and what purchasing policies they follow with their suppliers. Talk with their purchasing agent.

Meet the man who heads manufacturing—the works manager, general superintendent, or factory manager. Try to see the manufacturing facilities with him. If this isn't possible, visit them with

someone who knows how they operate.

Going through the shops of any vendor you should look for and note certain things. Among these: the age, efficiency, and design of machine tools and other equipment; the way machines are tooled; the methods used by operators. The newest and best machine tool will produce only as good a product as the tooling and operator will permit it to produce. A fancy machine does not necessarily mean a quality product.

Note the way production control functions in the shops. This is the key to maintenance of production schedules.

A Clean Plant Is A Good Plant

Housekeeping in the plant should be of real interest to you. Plant housekeeping does not mean simply clean floors. Notice whether the machines are clean, whether the tool benches, layout tables, etc. are orderly and clean. Are there accumulations of materials which appear to have been in one location for a long time? Is material stored in an orderly and efficient manner? Is the plant well-lighted? Are the lights properly maintained?

How do they handle materials in the plant? Do they use the best methods for their product and type of operation? Are storage areas reasonably located? Can materials be removed from storage areas with relative ease and and with excessive movement of other materials? These things indicate effectiveness of planning.

What, if any, are the apparent production bottlenecks? Is there room for expansion of production and storage facilities? Do they

have reserve production capacity? Are they working one shift or multiple shifts and what is their policy on this?

Is the tool room set up to properly service the production department with tools, jigs, fixtures, etc., or does the company depend on outside sources for these? If the latter, where are the sources located?

Does the company have a well-equipped and competent maintenance department? What happens, who does what, and what action is normally taken if a critical piece of equipment breaks down? Have they made arrangements to minimize the delays?

Watch for Quality Control

Find out how the supplier measures and controls quality, from receipt of the raw material through the manufacturing process. Good gauging, good equipment, and good tooling are extremely important. The interest of the people producing the product is even more important. How conscious of quality are they?

If you are buying items not made to your specifications then you should know whether finished goods inventory is adequate for the supplier to meet unexpected orders and still maintain reasonable delivery on normal orders. The traffic manager and the shipping manager can tell you the probable time it would take to move a processed order through shipping to your plant. Determine also whether their shipping procedures, packing, handling, and carriers are what you want.

Find out the policies, attitudes, and capabilities of the supplier's engineering organization. You should know whether they are keeping up with latest developments in their field. How advanced are their designs, research and development, etc.?

Here is a checklist that summarizes the points made above. Using it as a guide will help you reap real benefits from your plant visits:

1. The supplier's financial structure and situation, including credit rating, working capital, debts, etc.
2. The supplier's organization.

Who is responsible for what?

3. The sales organization and the methods used in quoting prices, deliveries, discounts, etc. Who makes up the sales organization and who are the people in that organization you can contact to accomplish the most good?
4. The order processing and production control organizations. The systems used and the efficiency of the systems.
5. Inventories of raw materials. Their probable adequacy, where they are obtained and in what manner.
6. The production equipment in use in the supplier's shops. The age, design, suitability and efficiency of the equipment for the requirement. The manner in which it is tooled and the operating methods used.
- (a) The production control and scheduling system in use in the shops.
- (b) The plant housekeeping.
- (c) The materials handling methods.
- (d) Reserve production capacity and/or expansion possibilities.
- (e) Tool room facilities and personnel.
- (f) Maintenance personnel and facilities.
7. The manner in which quality is controlled and consciousness of quality in the organization.
8. Inventory of finished goods. Is it adequate, how is material moved out of finished inventory, how packed, shipped, etc.?
9. Engineering. Is it adequate? Are they keeping up with new developments?



J. E. Gilbert (left) purchasing agent of Rockwell's Edward Valves Division inspects a lubricated valve plug forging at Standard Forgings Corp.'s East Chicago, Ind., plant. His guide on the plant tour is Standard Vice President R. W. Clansky, Jr.



Blanket Order Release System Saves in Several Ways

OUR JOB is to secure (1) proper quality, (2) required delivery and (3) best price consistent with quality. We need a system suited to buying repetitive productive and non-productive items. And we need a system that will cut down the time required to process requisitions and type purchase orders.

The Rockwell blanket order and schedule release form is the basis of just such a system. It is suited to purchasing of repetitive materials where they have dollar values that justify the use of formal orders. (There are many repeat items at all divisions whose values are so small that the items should be purchased on a "no purchase order" basis. The cost of a purchase order at our division is \$4.00. It's not good policy to order materials on a purchase order when the material cost is less than the cost of the order.)

What the System Does

This is what a blanket order system has done for us:

1) A 25- to 30% time reduction in the processing and ordering of requirements.

2) Possible cost reductions by securing quantity prices.

3) Better deliveries through better informed vendors.

4) Better deliveries because the system affords on-hand inventories and inventories made up in anticipation of requirements.

5) Invoice approvals are eliminated because of fixed negotiated price.

Just what is a blanket order? It is an order for a repetitive item. Usually only one item is placed on each blanket order, and all items ordered in the system have unit prices high enough to justify purchase order costs. All terms, discounts, routings, piece prices and duration periods of orders, are negotiated prior to initiating the order. Orders are usually for one-year, but can be for six or nine months, if it's to the pur-


chasing agent's advantage. Some vendors hesitate to negotiate prices for one-year periods when their raw material costs are solely dependent on supply and demand. Examples: bronze ingot, fasteners or castings. It is not always possible to negotiate quantity prices on all items ordered on blanket orders. Quantity prices are not the only reason for using blankets. Time savings in paper work are

enough to warrant use of the system.

Many vendors, however, are ready to negotiate quantity prices if they are assured of all business for the duration of the order for the part ordered. We try to secure prices based on the total estimated yearly usage of the item ordered. We hesitate to place this estimated usage on the order, and do so only in extreme cases. Our vendors understand that we are, on original order, negotiating only for estimates. The estimates are subject to revisions upward or downward dependent on business levels.

We also advise the vendor that

FORM 400-3

 **Rockwell MANUFACTURING COMPANY**

REQUEST FOR QUOTATION DATE _____

IMPORTANT

LOCAL DELIVERIES: F.O.B. OUR PLANT
OUTSIDE LOCAL AREA: F.O.B. SHIPPING POINT
UNLESS OTHERWISE SPECIFIED

IF UNABLE TO SUPPLY AMOUNT SPECIFIED, PLEASE SHOW HEREON THE QUANTITY YOU CAN SUPPLY AND YOUR GUARANTEED DELIVERIES.

PLEASE INSERT NET UNIT PRICE OPPOSITE EACH ITEM AND MAIL COPY PROPERLY SIGNED TO THIS COMPANY, RETAINING COPY FOR YOUR REFERENCE.

WE RESERVE THE PRIVILEGE OF EITHER ACCEPTING OR REJECTING YOUR PROPOSITION WITHIN THIRTY DAYS AFTER RECEIPT OF YOUR REPLY.

THE FOLLOWING INFORMATION MUST BE FILLED IN:

BEST CASH DISCOUNT _____ 10th PROXIMS

F.O.B. _____ (TO BE SHIPPED VIA _____)
(CL, LCL, OR TRUCK)

SHIPPING POINT _____

WEIGHT _____ FREIGHT RATE PER CWT. _____

YOUR BEST DELIVERY TIME _____
(DAYS, WEEKS, ETC.)

YOUR BID SHOULD REACH US NOT LATER THAN _____

DELIVERY REQUIRED AT _____

REQUISITION NUMBER _____

RETURN TO

ROCKWELL MANUFACTURING COMPANY
ADDRESS _____ DIVISION _____
BY _____ PURCHASING _____

QUANTITY	DESCRIPTION	NET UNIT PRICE	TOTAL PRICE
WE INVITE COST SAVING OR QUALITY IMPROVING SUBSTITUTES OR ALTERNATES. IF YOU RECOMMEND ANY CHANGE FROM OUR SPECIFICATIONS, PLEASE DESCRIBE ADEQUATELY.			

PLEASE QUOTE AS REQUESTED ABOVE

DATE _____

VENDOR SIGN AND RETURN ONE COPY

NAME OF VENDOR _____

RETAINING OTHER COPY FOR YOUR REFERENCE

SIGNED BY OFFICE OF COMPANY _____

Constant review of possible new vendors is essential for a successful blanket order system. This request for quotation form (with recap sheet for purchasing as the first part) helps in determining how much competition is available on a given requirement.

FORM NO. 1004-1
 TYPE IN ONE SPACE TO RIGHT OF ARROWS

FOR INTERNAL DELIVERY TO: AUTHORIZATION NO. ACCOUNT NUMBER

Rockwell MANUFACTURING COMPANY
 PURCHASE ORDER

PURCHASE ORDER NO. 37

THIS NUMBER MUST APPEAR ON ALL INVOICES AND PACKING SLIPS. CHECK INVOICES IN EMPLOYER

DATE OF ORDER

REQUISITION NUMBER

BILL TO: (DIVISION OR SUBSIDIARY)

SHIP TO:

TERMS

ROUTING

Example #1 - Blanket Order

Vendor - [REDACTED]
 Item - Productive Part #22601, 22- 24" Spur Gear Watertight Cover
 Price - As shown on Blanket, \$45.58
 Estimated usage at Negotiation - 36 pcs.
 Usage 1958 - 36 pcs.
 No. of Releases - 8
 Price if purchased monthly - 12 times, \$51.58 each
 Price if purchased quarterly - 4 times, \$48.58 each
 Savings 1958 using blanket order - \$216.00

Example #2 - Blanket Order

Vendor - [REDACTED]
 Item - Tooling, Non-Productive, a #4550, Grade 370 Standard Carbide Blank
 Price on Blanket - \$8.56 each
 Estimated Usage at Negotiation - 75 pcs.
 Usage 1958 - 100 pcs.
 No. of Releases - 3
 Price if purchased monthly - 12 times, \$9.80 each
 Price if purchased quarterly - 4 times, \$9.31 each
 Savings 1958 using Blanket Orders - \$122.00 or 12 tools W/C

Part No. or Material Description

BILL TO: ROCKWELL MANUFACTURING COMPANY
 401 NEWELL STREET
 BARBERTON, OHIO

SHIP TO BILLING ADDRESS UNLESS OTHERWISE SPECIFIED BELOW	DELIVERY REQUIREMENTS			FABRICATION AUTHORIZATION: THE SELLER IS AUTHORIZED TO FABRI- CATE THE ADDITIONAL QUANTITIES OF SUPPLIES SHOWN BELOW
	2 NOT LATER THAN	3 NOT LATER THAN	4 NOT LATER THAN	
TOTALS				

SPECIAL INSTRUCTIONS

- This Schedule and Release is your authorization to ship our Delivery Requirements only, as shown in Columns 2, 3, and 4.
- If you are unable to ship materials as requested in Columns 2, 3, and 4, you shall, as soon as your inability to ship an schedule becomes known, notify the person who authorized this release.
- YOU ARE TO MAIL a separate notice of shipment covering each shipment made against this release the same day that shipment is made, addressed to the originator of this release.
- Show our Purchase Order Number and this Release Number on your shipping notices and invoices.

PLEASE REFER ALL QUESTIONS REGARDING MATERIAL REFERRED TO ABOVE TO:

AUTHORIZED BY _____ PURCHASING

No. 2502

if our usage during the order period is not up to our estimate, we should be given the chance to increase it before he raises his price or submits his invoice. (Actually, our division didn't experience this situation once during 1958.)

Standard Form Used

Blanket orders are issued on the standard Rockwell purchase order form. All terms, routings, prices and parts descriptions are so noted on the order when issued. The duration of the order is also noted, and in rare cases, the estimated usage for the order duration is shown. Some blanket orders state certain quantities which must be inventoried by the vendor to protect us on deliveries. There is no need for further negotiation on any of the above information for the duration of the blanket.

Requirements should be constantly reviewed—not only with present suppliers, but with possible new vendors. Purchasing negotiates new blanket orders once yearly. A good buyer will send inquiries to his present vendor, and several potential vendors. This forces present vendors to review prices at least once a year and guard against increases that might cause them to lose the business they have.

Our division several times has avoided price increases which normally would have been passed on to us if items had been ordered on individual purchase orders. We have also uncovered some excellent new sources and come up with substantial cost reductions. Our savings from quantity discounts obtained by using blanket orders are estimated at \$4,000 for 1958.

Imprints Save Time

The Schedule and Release Form, used in conjunction with blanket orders, is a 9-part carbon set form, usually numerically imprinted. This form incorporates as much imprinted information as possible to cut down typing time.

Billing and shipping addresses are imprinted. We state that all items are to be shipped to billing address unless otherwise stated: 90% of the materials purchased for Barberton are for shipment to

Case histories superimposed on Rockwell purchase order show practical results of blanket order-release system.

Barberton. We have, however, provided space for typing one shipping address, in the event we wish to ship to a location other than Barberton. The receiving report copies provide spaces for proper entry of quantities received, dates received, and signatures of receivers.

The release provides spaces for

entering 3 separate delivery requirements and also a space headed "Fabrication and Authorization." This column can be used to inform your vendor of any requirements which you wish made up and held in anticipation of requirements. You need merely to issue a new release stating a delivery requirement and cancel-

ling out your fabrication release. There must be a mutually agreed-upon time in which you will remove the fabricated materials from the vendor's inventory. Our department at Barberton usually agrees to release items fabricated within 90 days after shipment of the last regularly scheduled release date.



Foreign Suppliers And The American Purchasing Agent

I AM not in favor of imports, and I am not opposed to imports. I do believe that we have to use every legitimate tool to maintain our competitive position in world markets and to forestall foreign manufacturers from making serious inroads into our domestic markets.

How can foreign manufacturers succeed against U.S. producers in the United States, regardless of tariffs, transportation charges, and distribution costs? The answer is, of course, lower manufacturing costs abroad.

Unit costs are divided into unit material cost, unit labor cost, and unit overhead cost. Taking a cross-section of U.S. industry, total unit cost is made up of 53% of material unit cost, 29% of overhead unit cost, and 18% of labor unit cost. A similar cross-section of overseas industries indicates that total unit costs are made up of 65% of material unit cost, 24% overhead unit cost, 11% labor unit cost. You will note that unit material cost is the largest single element, both in domestic and in foreign production costs. This points to the conclusion: (a) that material costs play a significant role; and (b) that products requiring a large input of material are likely to be made more cheaply here and to be more costly overseas.

Capital Investment Counts

Improved productivity and mechanization resulting from greater

capital investment have helped U.S. companies overcome the advantages of lower labor costs available to foreign competitors. This applies particularly to in-

dustries where the average capital invested per production worker is in excess of \$20,000. The advantage disappears as soon as we get below this figure of \$20,000 per worker.

We can see: (a) that unit labor costs are lower abroad; (b) that unit material costs are the most important single item of total material costs, both here and abroad; (c) that foreign manufacturers have a definite advantage,



Improved productivity and mechanization resulting from greater capital investment have helped U.S. companies overcome low foreign labor costs. These are Rockwell meters being inspected as they come off the line.

which increases as the capital investment per production worker required decreases. It is apparent that products demanding a large labor effort or relatively heavy overhead or both tend to be manufactured less expensively abroad. Whenever labor and or overhead are important factors in the unit cost mix, we have an opportunity to purchase cheaper overseas.

Take a practical example and assume that we have a product requiring a large labor content, such as a sub-assembly. Such a product could be advantageously supplied from Japan. We approach a Japanese supplier, submitting either assembly drawing or actual samples, but in any event giving him the least amount of technical information required to come up with an intelligent answer. Any drawings will be marked with our confidential stamp. We receive the quotation and find it compares favorably with our domestic costs. We also know, or should know, that on the first go-round, the quotation we receive is not based on Japanese production costs, but is more likely related to the knowledge they have of our production costs without giving us the full benefit of their very much lower unit labor costs.

After some negotiation we will arrive at a price we feel is acceptable. To this price, we will have to add inspection costs to cover the surveyance company which we will appoint. Finally, we will have to study our U.S. import tariffs and will find in many cases that all the advantages we thought we had obtained have disappeared. In the case of taximeters or parts thereof, for example, this tariff is at the rate of 42½%; and a tariff rate of this nature is generally too high to bridge. There is one additional thought we must take into consideration. Under the drawback provisions of our tariff regulations we can be refunded 99% of the import duty we have paid if the assembly we have imported is re-exported either as a sub-assembly or as part of a unit manufactured and assembled in this country, or if identical parts are exported.

It is important for you to know



Foreign quotations are often based on high U.S. labor costs, which are particularly high in assembly work. The smart buyer will make sure all quotations from foreign sources are based on foreign labor rates.

your suppliers in the United States—their reputations, their facilities, their engineering know-how. It is even more important for you to have this background on your overseas suppliers.

Even the most reputable foreign company will expect you to negotiate prices and will put in a high bid initially. The inexperienced buyer can easily be discouraged. It is important to know a little about the way business is conducted in these various localities. For preliminary quotations, assembly drawings or sample parts or fairly general specifications are adequate. However, before signing a purchase contract, complete specifications must be made available, and the purchase order should be based on them. It is possible that certain materials are not readily available to your supplier. Substitute materials should be considered, but they should be subject to specific approvals.

It takes time for your overseas

supplier to prepare his patterns or shop prints; it takes time to ship the material to our ports. You should take these time lags into consideration when planning your purchasing. You should allow at least 30 days between the promised delivery date and when you actually need the items.

I have shown that we can benefit from overseas purchases whenever the product has a high labor content. I would like to qualify this statement: There are many other reasons, political and legislative which may place the foreign producer in a competitive position. The German exporter, for example, enjoys tax reductions totaling 7% whenever he ships abroad. Italy has a similar arrangement under which the Italian exporter benefits to the extent of 6%. It is important to be aware of these situations when discussing prices with your overseas suppliers. They may very well show you that their profit

margin is very small indeed, but their cost sheets will not show up these hidden benefits.

Let's Not Lose Markets

If you purchase tools, dies, sub-assemblies or castings abroad, you may be accused of taking work out of American plants—your own or those of your domestic suppliers. You cannot deny it, but what is your alternative? Should

we sit back and lose our markets one by one? Don't forget, we face formidable competition, not only from Europe, but also from Russia and from the Eastern European bloc. If we are successful in taking advantage of the lower equipment, tooling and material costs available to our competitors and link these to our unquestionably high productivity, due to our larger capital investment per pro-

ductive worker, we will enormously strengthen our position both here and abroad. Rather than taking work away from our plants, we are doing everything possible to maintain employment.

We have almost reached a point where it is not a question of choosing the best city in the country in which to make a product. It is now a case of choosing the best city in the world.



Liability Insurance Protects Vendors

I. Purchase Order Conditions

A. Certificate of Insurance before commencing work on our premises

1. Public Liability

a. Automobile

b. Non-automobile

(1) Operations

(2) Completed Operations

2. Bodily Injury

3. Property Damage

4. Workmen's Compensation

B. Seller is responsible for his fault or negligence which results in:

1. Injury to persons—ours, his, and others

2. Damage to property—ours and others

II. What Insurance Does for Seller

A. Gives a minimum of protection for injury or damage without personal loss

B. Affords experienced and trained legal protection

C. Evidences responsibility to customer

III. What Insurance Does for Buyer

Basically, this insurance gives the buyer:

1. A security to look to in the event of damage to his property caused by the vendor's negligence

2. A financially responsible party who will deal with third parties himself or, in an appropriate situation, jointly with Rockwell rather than having Rockwell as the only financially responsible party

A. Fire

1. No vendor could be expected to carry sufficient P.L. Insurance to cover the cost of a serious fire. Our fire insurance protects us against such damage. If the vendor does have some coverage, it would offset our fire insurance company's cost through subrogation. The vendor would then be liable to suit for remaining damages. This would be true if the vendor negligently started a fire.

2. In cases of particularly combustible work, the vendor should have increased limits of coverage over the normal required. This is more for his protection than for ours.

3. Vendor coverage would have a beneficial effect upon our experience rating.

B. Other Damage—our property

1. Other physical damage to buildings, equipment, or machinery is not insured by us. Therefore, if through the vendor's negligence some damage occurs, we are assured of recovery more so than if we would have to deal directly with the supplier (spillage, dropping tools, etc.)

C. Other Damage—other's property

1. In the event a supplier (vendor) were to negligently damage the property of others while working for us, we could be sued. While we are covered by our Public Liability Insurance, any claim against us would work against our experience with the insurance carrier and eventually reflect itself in our rate. The vendor with proper property damage insurance would reduce our claim, since suit against Rockwell and the vendor would be done jointly.

D. Injury

1. Our employees: Normally our employees injured in the course of employment would be covered by workmen's compensation. However, since workmen's compensation is not a true insurance, but more like a fund against which our employees draw, there is an immediate reflection in rates of any serious claim. If the supplier has insurance and injures our personnel, our workmen's compensation account would not be charged.

2. Supplier's employees: As a rule, a vendor with three or more employees must carry workmen's compensation. Injury sustained by his employees would be covered by that coverage. However, if we are negligent, his employee could still sue us and our public liability insurance would have to cover.

3. Other persons: Injury to persons other than our employees or the vendor's em-

ployees undoubtedly would result in suits against both Rockwell and the vendor. We would be protected to some extent by the insurance provided by the supplier.

IV. Minimum Requirements

- A. Public Liability and Bodily Injury \$100,000
- B. Per Accident—Maximum 300,000
- C. Property Damage 50,000

- 1. These limits are under review by our brokers and may be changed upon their recommendation.

V. Who Should Supply Certificates of Insurance

- A. Technically all vendors who trespass

1. Optional

- a. Canteen Service
- b. Scrap Dealers
- c. Utility Service
- d. IBM or Machine Maintenance Men

2. Mandatory

- a. All vendors performing any type of construction, physical repair, or maintenance

nance to our property or equipment.

- 1. Responsible suppliers undoubtedly carry insurance within the prescribed limits.

- 2. Certificates can be obtained with a minimum of effort. Just contact the insurance carrier or broker.

- 3. If limits carried are less than our requirements, weigh the type of work against the possible damage and decide or contact headquarters, purchasing or insurance department.

- 4. On hazardous work, limits should exceed our minimums.

VI. Completed Operations

- A. This amounts to products liability insurance and should be a part of the vendor's P.L. coverage. It is usually an endorsement to the P.L. policy and would protect us to some degree should the product or service fail due to negligent workmanship after the job is completed.



The Care and Treatment of Industrial Salesmen

YOU AND your buyers determine whether or not we finally get the order. Sometimes you resent that we have our brand name so tightly specified that you cannot change, sometimes you change a competitive name to give us the business. We call on you, tell you shady stories sometimes, take you to lunch or entertain you and, if you are an important enough "Joe", promote a trip to one of our plants to have you see our manufacturing facility, but better than that, to get you to know us a little better. The most of you are pretty good guys, but there are a few bad apples in every bushel. We try to get along with you under any circumstances, and if you send orders to us regularly, we think you are great guys and love you.

I should like to make a few suggestions so that we can understand each other better and you can get from us the service you expect. You are the representative of Rockwell to the men that call on you, just as much as he is a representative of the company calling.

It would be very helpful in our relationship with you if you would:

1. See us.
2. Be frank with us. If you are not interested in our product tell us so we can get on to the next call.
3. If you are interested in our product and cannot make a decision as to purchase, refer us to the person we should talk to.
4. Our prices are often fixed. If you are a price buyer and cannot deviate, tell us and we will spend our time elsewhere.
5. Reciprocity is a nasty word in purchasing and sales. If you are asked to discuss this subject, make certain you are well acquainted with the party discussing it with you. Beautiful friendships have been broken by attempts to apply pressure through reciprocity.
6. Be honest with us. If you want to pass along a quoted price, be sure it is the price quoted. Sometimes we can check information received through purchasing departments.
7. If you place an order on a

price basis, be frank with us. We are required by management to keep abreast of price trends and getting such information from you is our best means.

8. As we get acquainted with you, constructively criticize the way we call on you. We are attempting to serve you. If you don't like our approach, tell us so we can change.

Right now we are in a buyer's market, so we are being asked to make many concessions to get an order. Maybe you are also asking for concessions. In case you haven't discussed this part of the purchasing policy of some companies, I'll mention a few of the things we're asked for:

1. Cash discounts
2. F.O.B. point of delivery
3. Consignment against monthly orders
4. Quantity discounts
5. Extras: Special point, special handling, special screws, truck instead of rail delivery, etc.

In conclusion, all I can ask is: Be good to the salesman that is calling on you. He isn't responsible for company policy, price or product quality. His suggestions, criticisms and advice are given careful consideration by management. He will be glad to pass along to his superiors any suggestions or criticisms you care to make.

Ali Baba and the 40 Value Analysts



ALI-BABA ran a plastics molding plant,—A-B Plastics, Inc. He had read Cash McCall, he belonged to the trade association and attended all the meetings. In short, Ali was up-to-date and ready for the future, but after all, there needn't be such a rush about it!

Ali advertised in four trade magazines, he answered his inquiries on time. He even had a nice bunch of commissioned salesmen. Ali-Baba's Babbling Bums, they were affectionately called. This was modern distribution, and it was being obsoleted by, of all things, the Future.

A-B Plastics did a lot of work for the Great Big Corporation. Ali knew oh, so very well, Uriah Heep the P.A. and his 40 little Heeps. All nice buyers, all nice guys.

Ali had always sold some great big plastics parts and some very tiny plastics parts to the Great Big Corporation. He would pick up prints from one of the Heep boys and come back with prices. The Babbling Bums made things look cheap and easy and the purchase orders did like-

wise. But Ali was frequently in trouble. Sometimes he had to change his prices. And this wasn't easy.

"You can't do this to us this year, Ali," cheeped one of the Heeps. "We based our selling price on this Magic Lamp on your quotations."

Ali was uneasy, but he too had a few aces tucked away in the curved tips of his shoes. "My plastic Whatsis is the biggest part of the lamp. I'm sure with all that mark-up there must be room for 13¢ more for me."

Well, to spare you all the grimy details (after all we're in the Future now, and this stuff is all old hat) Ali had to carry his crying towel in to old Uriah Heep himself. There he got a lesson in something that is still undefinable to Ali. He heard about burdens, and overheads, tool and design amortization, assembly labor, styling costs, packaging, distributor discounts, dealer discounts, defrayed billing, freight allowances, 2% ten days which is 8½% eight months, advertising allowances, baker's dozens and inventory shrinkages. There was Lifo and Fifo, selling, general and administrative expense. In fact, since the Magic Lamp retail price was based on Ali's quote, if Great Big gave Ali 13¢ more on his Whatsis, they would have to scrap \$235,000 worth of advertising and change the retail price to \$79.50. Actually, the 13¢ increase would allow them to sell the Magic Lamp for \$54.60 retail, but who ever heard of a Magic Lamp going for any price

Editor's Note: The author of the following allegorical parody is sales manager for a large plastics molding firm. He obviously has some strong views on value analysis. We are delighted to present them (1) because they are presented in such witty style and (2) they make a serious point about value analysis. Literate readers will recall, of course, that the original Ali Baba gained a huge fortune and thereafter "lived in great honor and splendor." So be it with all P.A.'s, value analysts, and their suppliers.

other than \$49.50, \$79.50 or \$99.95! It just wasn't good merchandising!

Ali Learns A Lesson

So Ali got gray in the service—but he was learning with a capital “L”.

He even heard about a new cloud on the horizon. It was called Value Analysis. The first signs of value analysis came when one of the Heeps gave him 68 blueprints and asked him to comment on the design—change the design if it could be made cheaper—and recommend plastic materials which could do the job better and for less money.

Now A-B Plastics, Inc. had a nice little Estimating Department. They even had a Chief Engineer! So Ali went to work. One of the 68 blueprints showed a carburetor assembly. There were 126 separate parts in the assembly and none of them were now in plastic. Four weeks later the Chief Engineer and the Estimating Department came up with an all-plastic carburetor. The body was phenolic, the seals were Teflon, the rocker arms were Nylon, the cover was Melamine, the diaphragms were Kel-F. There were nine glass-reinforced polyester brackets. The tooling came to \$185,000 and the assembly price was \$38.00 each. It MIGHT even have worked—under ideal conditions, that is.

Recognizing that he still had 67 more projects to estimate, he carried the quotations and engineering over to Great Big himself. This was too important to trust with one of the Bums.

It was very much appreciated. It certainly showed what old A-B plastics could do. Value Analysis was also pleased. It proved they were on the right track—in remaining with metal. Incidentally, the present carburetor was only \$14.22. Then too, there was all the special purpose, expensive metal working equipment they wouldn't want to obsolete. Yes siree—no sense in Great Big even *thinking* of a plastic carburetor any more.

When Ali got back to his office he looked at the other 67 prints. One of them was an engine block. The next was a launching device for flying carpets. He was tired. He glanced at his P and L statement. A-B wasn't doing too well. He called in some of the Babbling Bums for a spirited sales meeting.

The Bums Fight Back

“Our prices are too high,” they chanted in unison. “Our tools are gold plated and our piece prices are anywhere from 10% to 125% too high on every quote.”

“What should we do?” asked Ali.

“Cut the overhead, cut the burden rates,” chanted the Bums. “Raise our commissions to give us more incentive to sell.”

So Ali let the boom drop. He fired his Chief Engineer. He cut his Estimating Department down to one solitary guy and told him to quote cheap. The axe went through the plant, too.

“Girding our loins to meet competition” it was called.

About this time Ali went to a meeting sponsored by his trade association. One of the speakers was Uriah Heep from Great Big Corp. His subject—“Value Analysis, the Future Tool of Buying.” It was a whale of a speech. Beautifully received. Ali applauded. Things were sure going to be easy in the Future. He would soon be able to fire the Bums—and even get rid of the one solitary guy in estimating! Because here is what Mr. Heep had said:

“You molders are too inconsistent in your pricing and your promises.”

Ali agreed. Hadn't the Bums told him so!

“We can no longer base the selling price of our products on the estimates you suppliers give us—so we will do your estimating for you. Mr. Henry Morgan and his staff of 40 value analysts will determine what each component is Really Worth and then my boys in purchasing will apportion the jobs out to you at what the parts are Really Worth”—and at this point an ethereal glow filtered from Mr. Heep's face—“unless some of you are anxious to take them for less.”

Everyone Shares the Gold

Mr. Heep went on to explain how Great Big really wanted their suppliers to make a profit, however, and in his opinion this Future Tool of Buying would give a fairer distribution of his business at considerably fairer prices, because



“This Future Tool of Buying will give a fairer distribution of business at considerably fairer prices, because if there's one thing we won't tolerate, it's chiseling.”

if there was one thing that Great Big wouldn't tolerate, it was chiseling.*

Ali left the meeting entranced. Here was the cure to his ailments. Oh Rosy, Rosy, Future!

Returning to A-B Plastics, Inc., Ali took stock of his future needs. Since the Future Jobs were to be split up among the molder suppliers, he wouldn't need a sales force. Axe them Bums! Since the price was to be what the parts were Really Worth, out goes the remaining estimator. Of course, he'd need a few molders, maybe a foreman, a few finishers, maybe someone to do the packing. Ali himself could do his own buying. And he was fairly handy with a drafting board. After all, Mr. Henry Morgan and his 40 Value Analysts wouldn't let the parts go out for what they were Really Worth if they weren't already Properly Engineered. He could personally pick up the ball from there. Now couldn't he?

After the first year of operating in the Future, things certainly looked busy and prosperous at A-B. Since Ali had dispensed with his Accounting Department as needless overhead, he hadn't much idea whether he was making money or not—but Boy was he busy! One of the odd things pointed out to him by Mr. Morgan (who was

**The chisel, having been invented by that time, was a useful wood-cutting tool, and the speaker's reference to it was lost on this audience of plastic molders.*



"Ali axed his Bums, fired his Estimator, dispensed with his Accounting Department. He decided to do his own buying, and his own engineering. Boy, was he busy!"

really an Old Pirate, if you hadn't guessed up to now) was what the Whatsis on the Magic Lamp was Really Worth. Of course, this year's model was pink instead of cerise. But in the older days of overhead before Value Analysis took over all that work for him he Thought He Needed 97¢. Now, it was pointed out to him that he Actually Really Needed only 61¢ because that is all the Whatsis was Really Worth. Furthermore, the retail price on this year's Whatsis was only \$39.95 because the Buying Public had decided that was all that Magic Lamps were Really Worth, and Great Big had never sold so many of them. A-B's volume was certainly peachy too.

The Axe Falls — Temporarily

And then it happened.

One fine 10th of the month Ali couldn't pay his material bill. In fact he couldn't pay any bills.

We will spare the details again because they were pretty dismal. Molds were moved out wholesale. Great Big was slightly annoyed. Great Big's top management had a confab that went something like this:

"If our suppliers can't give us parts when we want 'em, up to our quality standards, at a Fair Price which we can afford to pay, then by the Veil of Bathsheba, we'll mold 'em ourselves."

Which they did.

Only Henry Morgan had to go back to pillaging the Spanish Main to make up the deficit in that department. Because nobody—not even Great Big themselves—could make the Whatsis for what it was Really Worth. But they never admitted it to an outsider. For awhile they pretended they needed the red ink as a pigment in the material. Then the 40 value analysts really went to work and redesigned. Great Big even put out a Magic Lamp for \$29.95—sort of a dressed down model. But the super-deluxe job with the guaranteed genii went up to \$79.50 (for merchandising reasons—that is) and the Buying Public seemed just as happy in the long run

And what of Ali-Baba?

Virtue Triumphs

Well, he did just as you might have expected. He went to his sample case and got out an old "profitable" model of the Magic Lamp with the cerise Whatsis. He rubbed it until the genii appeared. What advice the genii gave Ali we aren't too sure. But it is rumored around Sinbad's Bar and Grill where the value analysts hang out sometimes, that Ali-Baba is making a comeback. That he has even rehired the Bums, has a tidy, nice Estimating Department and a chrome plated Chief Engineer.

The moral of this allegory escapes us at the moment, but we are trying to leave Value Analysts everywhere with this one thought. Theirs is a new and fruitful service to all major manufacturing. But please don't set sights so low that "Really Worth" and "Actual Costs" are anything but one and the same. Look how it spoiled Ali's Future.

Punched Card System Simplifies Buying For 150 Locations

Nine hundred requisitions for over 1100 items are fed into this company's headquarters each week. Machine accounting has enabled the central office to maintain tight inventory control and improve its billing methods.

By Maurice Glockner and T. M. Kobza

WHEN merchandise is ordered by 150 field locations for about 260,000 vending machines, inadequate purchasing and inventory controls can lead to trouble.

The Automatic Canteen Company of America heads it off with a centralized system of purchase-order writing for its branch offices and distributors. Each week more than 900 orders (requisitions) involving 1,100 items are received at our Chicago office. A punched-card machine accounting system consolidates them and prepares the purchase orders sent to our suppliers. This enables us to realize the advantages of mass purchasing.

Our branch distributors are able to buy merchandise locally if they wish. We prefer, however, to centralize the purchasing of merchandise for use in our machines and the large majority of orders for some are placed through the central office. The reason for this use of central facilities is a matter of simple economics on the local level.

We want to obtain the best possible purchasing deals and at the same time maintain the highest quality. With centralized purchasing and tight controls—primarily through the use of punched-card data processing—we are able to give the local

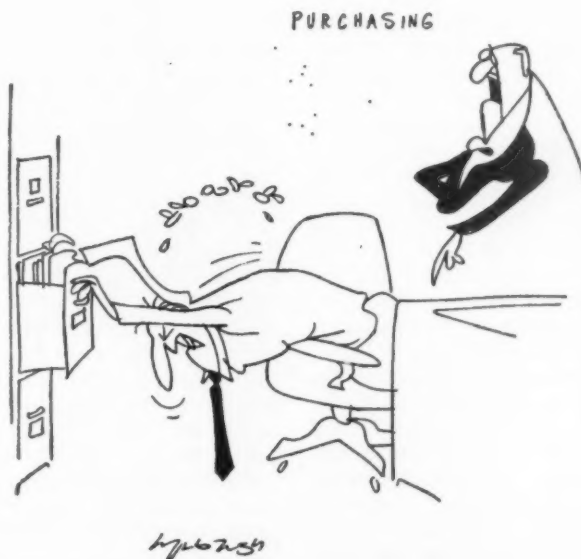
operation the advantage of both quality and volume purchases.

Extensions Made Automatically

Distributors send in their orders twice weekly. Members of our machine accounting staff then withdraw from a master file the IBM cards which represent the items on the order. Selling price, unit price and necessary extensions are made automatically with our 602A calculating punch. The purchase orders then are written automatically on the accounting machine.

Before the pack of gum or bar of chocolate reaches the consumer through a vending machine, its item card is put to other valuable uses in our office.

For example, the card is held on file until the arrival of our supplier's invoice. It then is used to check the accuracy of that invoice. Most of the time no change in the card is necessary. So we are prepared, without any further effort, to invoice our distributor—using of course, the same card originally used to order the items from the supplier.



Mr. Glockner is vice-president, purchasing and Mr. Kobza treasurer of Automatic Canteen Company, Chicago.

BRANCH PROFIT AND LOSS STATEMENT

3RD PERIOD ENDED DECEMBER 22
HARTFORD -BRANCH

SUMMARY OF NET PROFIT FROM OPERATIONS

THIS PERIOD		LAST PERIOD			YEAR TO DATE		BUDGET	
AMOUNT	%	AMOUNT	%		AMOUNT	%	AMOUNT	%
32,784.10	40.16	30,559.80	40.66	SALES	94,767.20	40.86	86,000.00	37.82
4,689.20	5.75	4,190.05	5.57	CANDY 10C	12,950.45	5.58	13,600.00	5.99
3,597.48	4.41	3,269.28	4.35	CANDY 5C	10,378.86	4.48	11,700.00	5.14
				GUM	19.04	.01		
8,614.10	10.55	8,023.25	10.68	NUTS	25,243.40	10.88	25,700.00	11.30
6,975.85	8.55	6,087.40	8.10	BEVERAGES	18,644.25	8.04	19,200.00	8.45
17,945.80	21.98	16,605.99	22.09	COFFEE & HOT CHOC	50,700.77	21.86	48,600.00	21.37
4,410.60	5.41	4,260.40	5.67	CIGARETTES 195368	12,369.85	5.33	15,500.00	6.82
486.60	.59	522.00	.69	MILK	1,614.80	.70	2,990.00	1.32
1,103.05	1.35	720.55	.96	ICE CREAM	2,464.90	1.06	2,130.00	.93
1,017.45	1.25	922.90	1.23	HOT CANNED FOODS	2,778.20	1.20	1,950.00	.86
81,624.23	100.00	75,161.62	100.00	OTHER PRODUCTS	231,931.72	100.00	227,370.00	100.00
				TOTAL				

Treasurer Kobza, left, shows V.P. Glockner some of the wide variety of statistical data produced by the mechanized accounting system.



This ability to have most of our billing work done ahead of time has been a great help in maintaining good relations with our suppliers. When their invoices arrive we are ready to roll with our accounts payable procedures and do not have to waste time processing our own internal paper work. Naturally, the suppliers want their money as quickly as possible and this type of performance helps them get it. The speed of punched-card machine accounting comes into play in our distributor billing procedures. The IBM detail cards, summarized weekly by the machine accounting department equipment, are used for the billing run. In a system serving approximately 150 branches and distributors the invoicing itself requires less than 1½ hours each week. In that time we are able to write about 150 invoices, some of which run to two or three sheets. The invoices are printed on the accounting machine and then sent to the distributors, who must remit within two weeks.

The summary cards used in the billing operation later contribute to the comprehensive profit and loss statement which is an important part of Automatic Canteen's management reporting. Many other statistical reports also are produced by our IBM installation from order detail cards and summary cards. Among

these are reports by distributor and by suppliers. We also issue cost reports, reconciling billings and payables; and sales reports, listing items which have gone into the inventory of the branch offices.

Many of the reports issued are aimed directly at the product purchasing department as guides to future purchasing and marketing efforts. Among these: A candy bar report, itemizing sale of bars for the week by product and item; a supplier and item report comparing quantities by item purchased from each supplier; and a report coordinating sales and advertising effort to establish the effect of any merchandising drive on one type of product.

Machine Provides Accuracy

We know that with punched-

card machine accounting we are 99-9/10% correct. That minute fraction possibly might go wrong because there still are some manual procedures in connection with ordering done on a local level in which a miscoding slip might occur.

Centralization of accounting has been another boon. In ordering for our widespread branches and in maintaining an inventory control program we have the advantage of having a complete set of books for each branch office at our command in Chicago headquarters. Information on each branch operation is compiled here, instead of at the branch, and is automatically transferred into the company books. Accordingly, we know that our sales and inventory picture for the company as a whole is current.



A view of the Autonetics Division central purchasing office. Over 350 people are employed in the department, including 39 buyers and 19 supervisors.

Decentralize Without Losing Control

In effect, that's what the Autonetics Div. of North American Aviation has been able to do. Behind the success of Autonetics' switch to decentralized purchasing is the stress placed on staff specialists.

By John Starr

PURCHASING at Autonetics, a division of North American Aviation, Inc. located in Downey, Calif., is now decentralized. Major buying responsibilities have been allocated to five purchasing agents so that they can work independently—devoting their time and attention to specialized projects.

Yet the work of the department is coordinated sufficiently so that C. R. Raftery, director of material, and Stanley D. Zemansky, general purchasing agent, have still been able to retain virtually all the advan-

Mr. Starr is a free-lance writer who has specialized in the fields of procurement and industrial manufacturing techniques.

tages of a centralized purchasing program. In addition, the recently-adopted system:

- Has improved morale by creating a team spirit which enables each of Autonetics' main product lines to receive the attention it needs from purchasing.

- Is bettering communications by permitting buyers, requisitioners, and vendors with common interests to confer more freely and find solutions to their problems—without becoming entangled in the "red tape" common to large centralized organizations.

- Pinpoints responsibilities so that the performance of buying

personnel can be quickly and accurately evaluated.

Material Division

To procure all the items that are needed for current contracts, Autonetics has a material division with 482 employees—including 352 who are directly concerned with purchasing. Besides clerical personnel, purchasing has 39 buyers, 21 material liaison men, and 19 supervisors. All of these men are authorized to make certain expenditures.

During its last fiscal year, Autonetics' purchasing department issued orders with an average value of \$300 for a total of

\$30,000,000. An even larger dollar volume of purchases is expected this year.

In deciding how this huge buying job could be handled most efficiently, material director Raftery and G.P.A. Zemansky evolved a product line breakdown of responsibilities. This allows the five P. A.'s to specialize in these buying areas:

- a) "Minuteman" guidance and control systems
- b) Inertial navigation equipment
- c) Data processing and computer equipment
- d) Armament and flight controls
- e) Central purchasing of common-denominator items — like raw materials, usage hardware, stationery, and maintenance supplies.

Specialized Buying

Supervisors and buyers responsible to each purchasing agent concentrate on procurement problems that are progressively even more specialized (see cut).

Why was this type of system set up? The main reason is that about 95% of the items bought—other than common denominator items—must be made to order.

But to retain a desirable degree of uniformity in buying, it was also found necessary to establish centralized staff functions. These include:

1) **Program administration**—This task was assigned to an independent administrator, who is responsible for coordination of work on major programs and projects.

2) **Cost analysis**—Since this involves work on all programs, the job was allocated to an organization of accountants under a supervisor in the central purchasing group. The accountants maintain a "floating team" operation—assisting all purchasing agents by making sure that areas like renegotiations are handled properly.

3) **Systems research**—Presently this involves the determination of how electronic systems can best be used in connection with material operations. It is handled by technically trained men under

an administrator in the central purchasing group.

4) **Central services** — This group performs the routine work—including preparation of a hefty material division manual, dissemination of new ideas and procedures, and also helps push company policies.

Buying Teams

In addition, each of Autonetics' purchasing agents may form buying teams for special projects when scheduling is unusually tight, needs are abnormally complex, etc. According to General Purchasing Agent Zemansky: "The project teams come and go, but not as fast as in a centralized organization—since we are decentralized physically as well as on paper."

Due to a preponderance of research and development contracts at present, Autonetics' purchasing agents also have liaison men who specialize in limited quantity procurement for the engineering department.

Director of Materials Raftery believes that no follow-up work is needed if a buyer does a good job. But being a realist, he has found it most practical to have buyers assume the prime responsibility for any expediting their own orders may require.

"We also have specialized expeditors," he adds. "They report directly to our supervisors, who assign them to specific buyers who have special expediting problems from time to time. The purpose of this is to avoid situations whereby buyers have to devote more time to expediting than to purchasing."

Where orders involve extremely large expenditures, Zemansky and Raftery personally select vendors and handle any expediting that may subsequently be necessary.

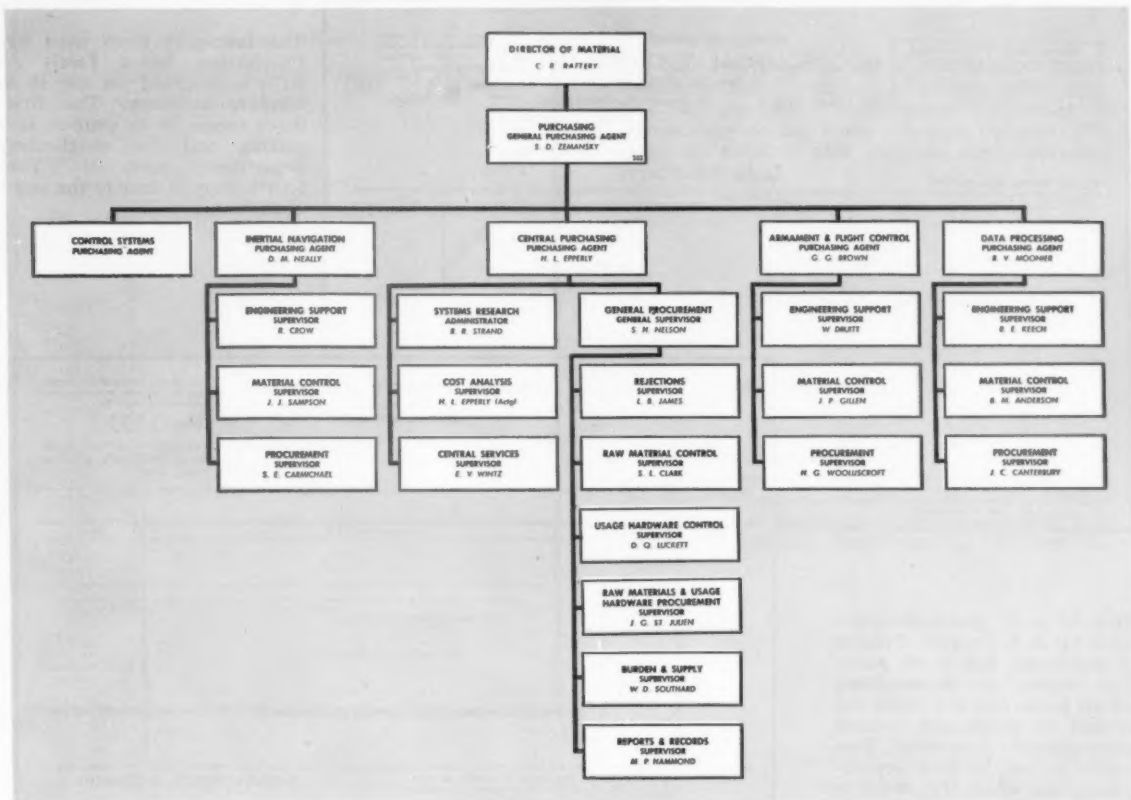
Routine Ordering

To minimize the cost of items in common use at Autonetics, the central purchasing group has a routine ordering program for the maintenance of monthly inventories. In some cases, the orders automatically go to suppliers with whom single contracts have been negotiated for all North American divisions to obtain the best quantity prices.

"Like other divisions of North American Aviation," Raftery says, "we participate in buying on a corporate basis whenever we possibly can, simply because that is the most rational thing to do. Since our buying operation is independent, however, it is our prerogative to decide when such



C. R. Raftery (r.), director of material, and Stanley D. Zemansky, general purchasing agent, control over \$30 million worth of buying annually. Most of Autonetics' purchased parts and materials are made to order.



The division has five purchasing agents who are each responsible for certain specialized areas of buying.

In addition, a number of staff men with special responsibilities report directly to the general P.A.

as of March 1, 1959

participation will be practical."

The type of articles to be ordered for Autonetics on its own is determined by a committee of departmental representatives who meet regularly. Similarly, decisions to make corporate-wide purchases are made at meetings attended by material directors and general purchasing agents from North American's divisions.

Business to Small Business

In obtaining competitive bids, Autonetics makes a special effort to give small businesses a chance to quote. Consequently, about 76% of the division's orders are currently going to firms that have less than 500 employees.

The division has about 3000 suppliers, of whom about 2300 can be considered small businesses. In dollar volume, more than half of Autonetics' expenditures are with larger concerns. But, Zemansky points out the reason for this: "most small com-

panies don't produce things like raw materials and complex systems or subsystems."

Autonetics' purchasing department has not yet been automated to any great extent. The only current use for computers is in the preparation of commitment reports, inventory data, and small business statistics.

Minor Disadvantages

Although the division knows that automation is essential to the efficient maintenance of a large-scale buying operation, it also realizes that computers have certain minor disadvantages. For instance, Raftery and Zemansky feel that automation will require:

- More filing for output documents.
- Extra search time for historical transaction data on specific items.
- Issuing materials prior to the preparation of appropriate records.

● Added time to authorize the issuance of materials following the receipt of miscellaneous unscheduled warehouse requisitions.

However, Raftery and Zemansky are aware of how computers can aid in preparing transaction registers, material action notices, supplier source open order status data, monthly management reports, special analyses, and priced bills of materials. And they know that there are many other advantages of computers—including lower clerical costs, less paper flow time, fewer material shortages, reduced material surplus, and greatly improved material support.

The two Autonetics executives intend to install a computer soon. They believe that their forthcoming computer installation—besides paying for itself in a matter of months—should save many thousands of dollars during its initial year of usage.

PURCHASE ORDER MOORE SPECIAL TOOL CO. INC. P. O. Box No. 4088 800 Union Avenue -:- Bridgeport 7, Connecticut		PLEASE MARK OUR P. O. NUMBER AND REGISTRATION NUMBER ON ALL INVOICES, CARTONS, CORRESPONDENCE, ETC. PURCHASE ORDER No. A 001
To _____ Ship Via _____		REG. NO. _____ Date _____ Wanted _____
PLEASE ENTER OUR ORDER:		
QUANTITY	DESCRIPTION	PRICE
PLEASE NOTE: IT IS UNDERSTOOD THAT IN ACCEPTING THIS ORDER, THE PURCHASER AGREES TO THE TERMS AND CONDITIONS SET FORTH IN THE CONDITIONS PRINTED ON THE REVERSE SIDE OF THIS ORDER.		

The four-part form used by Purchasing Agent Louis J. Kish is designed for use in a window envelope. The first three copies go to vendor, receiving and the purchasing department open file. The fourth copy is sent to the requisitioner.

This 5" x 8" purchase order used by J. J. Carroll, director of purchases, has seven parts. Two copies go to receiving which keeps one and sends the second to production control after material is received. Two copies go to the cost department—one when the order is issued and the second after material is received.

PURCHASE ORDER ORIGINAL WARREN WEBSTER & COMPANY ESTABLISHED 1888 CAMDEN, NEW JERSEY		ORDER NO. BELOW MUST APPEAR ON ALL INVOICES, PACKAGES AND SHIPPING PAPERS. No. 13917
To _____		ACKNOWLEDGE RECEIPT OF THIS ORDER ON ACKNOWLEDGMENT COPY, STATING WHEN YOU WILL SHIP.
T.O.	E.O.	DEPT.
QUANTITY	SYMBOL	DESCRIPTION
		PRICE
		DATE
THIS ORDER IS SUBJECT TO CONDITIONS AND INSTRUCTIONS PRINTED ON REVERSE SIDE HEREOF.		WARREN WEBSTER & COMPANY BY _____

Forms Forum

This article is one of a series illustrating and explaining the use of various purchasing department forms. All forms that will be described in this series have been selected from representative purchasing organizations around the country. Watch for Forms Forum and see how your own forms measure up.

FEW P.A.'s are ever completely satisfied with their purchase order form. The main reason is that they have to make compromises between what they would like the form to be and what's practical.

On these pages are purchase order forms from five companies—companies that made their P.O. compromises quite successfully. P.A.'s who are pondering revisions in their own P.O.'s may pick up some helpful tips from

the forms shown here.

Three of the forms illustrated are the standard 8½" x 11" size, while the others are short forms. The most unusual of the group is the one used by Woodland Container Company which, as the cut shows, combines the original P.O. and the acknowledgment on one sheet. Also of interest is the way the Moore Special Tool Co. form solves the problem of making certain that vendor invoices are charged to the right division.

Purchasing Ties In With Management's Fiscal Planning

Purchasing's big job in this small company is buying raw material. To keep inventory low and turnover high it has combined purchasing and accounting into one department.

By Paul E. Penrod



Sierra Drawn Steel's P.A. and treasurer, Paul Penrod, has integrated the two departments in order to do a better and faster buying job.

A BUYING program—run as an integrated part of a general accounting operation—can have many advantages. In the past two years, such a program has enabled Sierra Drawn Steel Corporation to:

- 1) retain a satisfactory inventory of raw materials, and
- 2) maintain a complete turnover of available company funds about once every three months—without a sacrifice in price, quality, or efficiency.

Sierra employs fewer than 500 workers in two plants at Los Angeles, Calif., and Seattle, Wash. Our purchases, however, are well over \$2 million annually.

The main purpose of our purchasing department is to provide raw materials for the cold drawing of steel bars for customers in the extreme western portions of the United States and Canada. All of our buying activities are correlated with top management fiscal planning. This arrangement has many advantages, including:

- Allowing us to maintain an efficient buying operation with no more personnel than would otherwise be required for accounting alone.

Mr. Penrod is both P.A. and treasurer of Sierra Drawn Steel Corp., Los Angeles.

- Eliminating much of the confusion that sometimes occurs where purchasing is the responsibility of someone whose decisions are subject to change by top management.

More than 75% of the products we buy each year are steel bars—which have square, round, hexagonal, and sometimes other configurations. They also are made in varying sizes and grades. These materials are purchased in quantities of one carload or more from steel suppliers like Bethlehem; Kaiser, Columbia-Geneva, and Inland. The average value of purchase orders sent out from Sierra's Los Angeles plant range from \$15,000 to \$20,000.

Inventories Kept Low

Since we are well aware of prevailing prices for steel (and since we often have only one feasible source of supply because of current freight rates), our principal concerns in purchasing are locality, service, and delivery. There are relatively few occasions when we find it necessary to do an all-out job of shopping. Therefore, we can usually serve the best interests of the company if we:

- 1) Minimize the physical cost of placing our orders.

- 2) Maintain an inventory that will permit Sierra to fill its orders without spending large sums for materials which cannot be used for long periods of time.

To accomplish this, we keep continuously up-to-date inventory records. We use this information to determine what materials should be ordered on a routine monthly basis to meet customer demands. However, because these demands are somewhat variable, purchasing is faced with many additional problems.

Up to now, we have been unable to locate a crystal ball that will predict the future with any degree of certainty. But we have found that, by using inventory data to plot time-quantity graphs, we can generally detect new trends in customer buying habits soon enough to increase or reduce monthly orders without incurring either surpluses or shortages.

Inventory Cards

Our basic inventory records are kept in Kardex files. Each card represents a specific size, shape, and grade of material. What do these cards do? They indicate the quantity of material being processed each month for our cus-

tomers, so that data on the stock on hand in any given category will be obtainable whenever needed.

At the end of each month, Kardex data are totaled. The amount of each stock item used during the previous 30-day period is incorporated in a report which is then used to bring the time-quantity graphs up to date.

Any short-or long-term increase or reduction in demand for a material will become obvious at a glance at the slope of the line on a graph. This makes it possible to determine whether the established minimum inventory level for that material should be retained.

Flexible Stocks

We then increase or reduce inventory requirements in proportion to changes in demand. Of course, we always keep a small "cushion" allowance for stock that may suddenly be needed for unpredictable reasons. And we use an inventory analysis form to compare all the factors that determine what orders should be placed to replenish our inventory.

Such factors include:

- 1) indicated demand per month
- 2) hot mill production cycle in months
- 3) indicated demand per cycle
- 4) quantity that can be ordered with maximum economy
- 5) possible cushion allowances
- 6) quantities already on order and on hand, and
- 7) preferred reorder point.

The statistics we get make it possible to compute minimum and average out-of-balance data by addition or subtraction. Then the quantity of any material that should be ordered can be determined by multiplying by monthly demand and the lead time.

Currently, our lead time allowances range from 30 to 90 days. No orders are placed where materials on hand and on order exceed minimum reorder points at the end of any 30-day period.

Originating Requisitions

In some instances, we find it advisable to buy materials in quantities that exceed actual in-

ventory needs in order to meet the requirements of our suppliers or to make up a carload lot. But this is the exception, rather than the rule.

Requisitions for all inventory items are originated by the purchasing agent. A typist in the department uses them to prepare purchase orders. Requisitions for other types of merchandise may originate in the office of the mill superintendent, but must receive purchasing's approval before any buying is done.

No shop approval is required before the processing of requisitions originated by purchasing. But the mill superintendent is frequently asked to suggest lengths of bar stock that should be ordered, since we could incur a serious scrap problem if his advice were unsolicited or unheeded.

Like most California business organizations, we try to get our inventory down to an absolute minimum on February 28 of each year—when state taxes are assessed on an inventory basis. Because of our present procurement setup, we now find it practical to maintain an average monthly inventory about 1000 tons less than

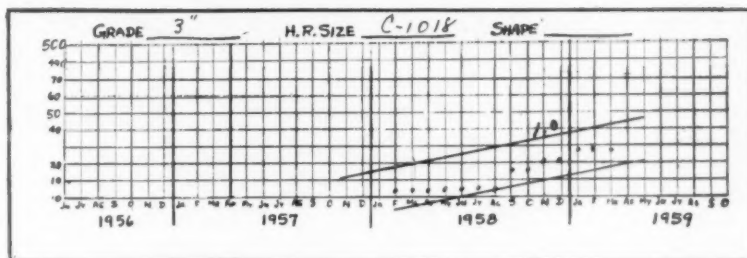
it was when our purchasing was separated from accounting.

Forecasting Requirements

Our actual physical cost in issuing a purchase order is presently less than \$1. Since we have relatively little money tied up in "dead" inventory items, we can forecast most of our monetary requirements and arrange to buy at maximum cash discounts—which tend to improve our vendor relations.

Our integrated purchasing program evolved after a detailed survey was made under the direction of an operations research expert. Out of this study came the graph system for keeping track of customer demand and allowing us to gear our orders to this demand. Naturally, we had to work out ways to effectively integrate the system into our overall company policy.

Some personnel training was required to make the program effective. As we anticipated, a few "newcomer blunders" marred its early usage. However, there were no really serious problems to contend with and we soon attained a coordinated purchasing-accounting operation.



GRADE 3"				SHAPE C-1018			
H.R. SIZE:		H.R. SIZE:		H.R. SIZE:		H.R. SIZE:	
Mo.	TOTAL FOR MONTH	CUMUL. TOTAL	Mo.	TOTAL FOR MONTH	CUMUL. TOTAL	Mo.	TOTAL FOR MONTH
Jan			Jan			Jan	
Feb			Feb			Feb	
Mar	48	48	Mar			Mar	
Apr		48	Apr			Apr	
May		78	May			May	
Jun		118	Jun			Jun	
Jul		158	Jul			Jul	
Aug		198	Aug			Aug	
Sep	15	213	Sep			Sep	
Oct		213	Oct			Oct	
Nov	4	217	Nov			Nov	
Dec		217	Dec			Dec	

Time-quantity graph (top) shows how much of each product is being sold. This allows purchasing to make changes in minimum inventories quickly. Inventory data, obtained from Kardex files, are recorded on form shown at bottom. (Both forms have been condensed in illustration.)

Purchasing-Packaging Cooperation Saves Money for Boeing

When you're buying components for a huge Air Force bomber, you're frequently dealing with very large parts and assemblies. That's why packaging plays such an important role in total purchasing costs. And that's why Boeing set up a program of purchasing-packaging-vendor liaison to cut those costs.

PURCHASING-VENDOR cooperation on packaging has resulted in important dollar savings for Boeing Aircraft Company's Wichita, Kan., division.

The division started a packaging program six months ago designed to cut costs on packaging of both inbound and outbound shipments. It's expected that \$315,000 will be saved on Boeing's current Air Force contracts alone. Much of the credit for this sizable cost reduction belongs to the purchasing unit headed by James Duncan.

How does purchasing save money on packaging? Primarily by keeping close tabs on the packaging methods and materials used by suppliers and subcontractors. If Boeing thinks it can save money by substituting a different material or technique, it makes suggestions to the vendor. Usually it doesn't take long for a subcontractor to follow the advice of his prime contractor.

Determining Packaging Costs

In actual practice, the system works like this: a Boeing buyer negotiates a price with a vendor for a certain new aircraft component. Generally, this price does not include the vendor's packaging costs.



By substituting spring fasteners for nails, knockdown returnable boxes can replace more costly containers. The boxes can be used many times for shipping various aircraft components.

The next step is to determine these packaging costs—which include boxing, crating, and loading. The buyer then reviews the subcontractor's packaging plans with the aim of reducing the cost wherever possible.

Before the purchase order is written, however, the buyer sends a resume of the projected order—including the components to be shipped and type of packaging proposed—to a group of specialists at Boeing known as the "packaging team." This group, under the direction of Joe Haller, is a branch of the warehousing



Boeing-Wichita materiel manager Wayne Perkins is responsible for the packaging cost reduction program that has made big savings for the division.

unit. (Both purchasing and warehousing are in the material section, run by materiel manager Wayne Perkins.)

The packaging team goes over the proposed packaging arrangements carefully. If they discover a better way to pack the assemblies or parts, they notify the P.A. who passes the idea along to the supplier for revision of his original plans.

Bulky Components

Packaging costs are more important at Boeing than at many companies because of the heavy



Special packages have been worked out for long wing plate sections. These innovations have saved the company many thousands of dollars since the program began in February.

weights, large sizes, and odd shapes of many purchased components. Landing gears, for example, weigh up to 1600 pounds. The size of wing flaps ranges up to 33 feet. And some individual crates for the larger and heavier assemblies can cost as much as \$500.

One instance of a cost reduction worked out by purchasing and packaging was to substitute knockdown returnable containers for expendable plywood boxes. The containers have panels secured by spring fasteners instead of nails. These fasteners can be quickly removed after unpacking and the panels are then stacked for return shipment. The savings expected on existing orders as a result of this change: \$105,000.

Another packaging change involved a component that was being shipped in wooden boxes one inch thick. After the purchasing and packaging experts studied the problem, they saw that a thinner piece of wood with a paper overlay could be substituted on the top and bottom. They suggested this change to the supplier, who quickly put it into effect. Boeing's saving on this contract: \$2500.

The purchasing agents and packaging men often make use of Boeing's extensive quality control laboratories to test new methods of packaging. Materials that are believed to be stronger, lighter or less expensive are thoroughly tested and inspected before any substitutions are made.



Detailed designs for cleating and taping boxes and crates have been worked out. This new packaging offers the same protection as the type Boeing previously used, but employs less expensive and lighter materials.

An example of the work of Boeing's "packaging team" are these special shipping fixtures. They are for wing sections and tail fins of the B-52G missile bombers.



The packaging team also makes daily spot checks of shipments arriving from vendors. Containers are screened for signs of overpacking. The team also watches for ways to reduce the weight of the packages or to simplify them. If they come up with any ideas, they notify purchasing. The vendors concerned are contacted and the changes are put in effect.

The savings made by Boeing's purchasing and packaging people go further than the company's profit and loss statement. These packaging cost reductions are passed along to the Air Force on contracts for B-52G missile bombers and other military aircraft. Eventually, all of us, as taxpayers, save money because of this effective teamwork.

Exclusive Dealing

Violates Anti-Trust Laws

Contracts to buy all requirements from one supplier are illegal when they substantially lessen competition

By Albert Woodruff Gray

A CONTRACT recently before a Federal Court in Tennessee provided that a coal company would sell and a Florida utility would purchase from this seller all the coal required for its plant for twenty years. The utility charged that the contract was illegal, void and a violation of the Federal antitrust laws.¹

Its contention that such a provision lessens competition echoes the comment of an English judge in the early years of the fifteenth century. Suit had been brought against a dyer for the violation of an agreement that this dyer would not ply his trade in his home town for half a year. Asserting such a provision was void the judge exclaimed in his wrath against monopolies, "Per Dieu, if the plaintiff were here he would go to jail until he paid a fine to the king."²

Within a few years, by the estimate of the buyer in this controversy, the consumption of coal by the utility would be greater than that of all other users in the state.

The Clayton Act (which the utility claimed had been violated by the exclusive dealing contract) says, "It shall be unlawful for any person engaged in commerce, in



"Essentially violations (of the Clayton Act) do not lie in the contracts themselves, but in the effect of such acts or contract provisions that may serve 'to substantially lessen competition or tend to create a monopoly.'"

the course of such commerce, to lease or make and sell or contract for sale of goods, wares, merchandise, machinery, supplies or other commodities, whether patented or unpatented, for use, consumption or release, within the United States on the condition, agreement or understanding that the lessee or purchaser thereof shall not use or deal in the goods of a competitor or competitors of the seller, where the effect of such lease, sale or contract for sale or such condition,

agreement or understanding may be to substantially lessen competition or tend to create a monopoly in any line of commerce."

The seller, however, contended that the contract did not come within the condemnation of this statute since there was no provision that the buyer might not use the goods of a competitor in other plants under construction.

Called "Requirements Contract"

Holding the contract void under Section 3 of the Clayton Act

the District Court said, "The court is persuaded that the contract is a requirements contract having the effect of requiring the buyer not to use the goods of a competitor of the seller within the intent and meaning of Section 3.

"It clearly provides in effect that the buyer must buy only from the seller all of its coal for its units in operation and for the additional unit now under construction at the Gannon Station, representing in fact all of the buyer's present coal requirements. According to the buyer's estimation it will require 1,000,000 tons of coal per year at the Gannon Station by 1961."

The court added, "A contract to supply the total coal, requirements of an operation of such magnitude for such a protracted exclusionary period, clearly falls within the purview of the statute. The question must be decided upon the basis of realities and the contract construed reasonably in the light of existing facts.

"While the possibilities suggested do exist, the unalterable fact remains that the contract at issue is one which 'pre-empt' or 'engrosses' all of the known coal requirements of the buyer—manifestly a large and substantial volume of commerce—for a period of 20 years."

Had the plant been small and the fuel consumption correspondingly less, there would have been no violation of the statute. Over the entrance to the ancient Oracle of Delphi was an inscription that epitomizes the offense condemned by this statute, "Nothing too much." The wrong lay in the quantity, not in the contract.

Reference was made in this case to the decision of an action charging a violation of this same statutory provision. Lease agreements had been made by one of the country's largest salt producers with its customers for the rental and use of a device for dissolving rock salt into brine for various industrial processes.

It was stipulated that the device, which had been patented by the salt producer, "shall be used for dissolving and converting into brine only those grades of rock salt purchased by the lessee from

the lessor at prices and upon terms hereafter agreed upon."

Effects Are What Count

Essentially violations of the statute do not lie in the contracts themselves, but in the effect of such acts or contract provisions that may serve "to substantially lessen competition or tend to create a monopoly."

Here the offense was the implementing of a patent monopoly to the rigging of the market for another and unpatented article of a quantity sufficiently large to affect the price. No tie-in feature of that sort characterized the requirements contract of the Florida utility. In both instances however, the proportion of the sales were apparently a major factor in establishing these agreements as violations of the statute.

In its decision against the patentee of the salt dissolving device the court said:

"Not only is price fixing unreasonable in itself but also it is unreasonable in itself to foreclose competitors from any substantial market. The volume of business affected by these contracts cannot be said to be insignificant or insubstantial and the tendency of the arrangement to accomplishment of monopoly seems obvious.

"Under the law, 'agreements are forbidden which tend to create a monopoly and it is immaterial that the tendency is a creeping one rather than one that proceeds at full gallop, nor does the law await arrival at the goal before condemning the direction of the movement.'"

Times Don't Change Law

For centuries the planned interference with the market of either commodities or labor has been condemned by the law. Different times and conditions have brought changed expression of

this law but the idea itself still persists, whether it be in reference to an exclusive dealing contract, as that between the Florida utility and the coal supplier, or tie-in agreements such as those made by the salt company.

It is clearly expressed in a decision involving the Sherman Act, by the Federal appellate court shortly after the enactment of that statute. "Under the common law," said that court in its decision, "the ground on which contracts in restraint of trade were declared unlawful was that they were against public policy.

"But when it becomes necessary to consider grounds of public policy in the determination of a case it is well to bear in mind the oft quoted remark that, 'Public policy is a very unruly horse and when you once get astride of it you never know where it will carry you, it may lead you from the sound law.'

"Public policy changes with the changing condition of the times. It is hardly to be expected that the public who are transported by steam with a rapidity hardly conceived of a century ago, who are in constant communication with each other by electricity and who carry on the most important commercial transactions by the use of telegraph, while separated by thousands of miles, will entertain precisely the same views of what is conducive to the public welfare in commercial and business transactions as the people of the last century who lived when commerce crept slowly along the coasts, shut out of the interior by the absence of roads and hampered by the almost impassable ocean."

Not price fixing but the exclusion of competition was the determining factor in the banning of the exclusive dealing agreement of the Florida utility. That

REFERENCES

- (1) Tampa Electric Co. v. Nashville Coal Co., U.S. Dist. Ct., Tenn., November 18, 1958. C.C.H., 1958 Trade Cases, 74,645.
- (2) University of Chicago Law Review, vol. 21, page 355.
- (3) International Salt Co. v. U. S., 332 U. S. 12, November 10, 1947.
- (4) United States v. Trans-Missouri Freight Ass'n., 58 Fed. 58, Kansas, October 2, 1893.
- (5) Fashion Originators Guild v. Federal Trade Commission, 114 Fed. 2d 80, New York, July 22, 1940.
- (6) Fashion Originators Guild v. Federal Trade Commission, 312 U. S. 668, New York, March 3, 1941.
- (7) Times-Picayune Publishing Co. v. U. S., 345 U.S. 594 Louisiana, May 25, 1953.

same factor was the controlling one in the condemnation of another contract of this character by the United States Supreme Court.

To prevent what was termed "style piracy," the copying of original dress designs of others, members of a Fashion Originators Guild mutually agreed to refuse to sell to retailers who purchased garments copied from the original designs of any of the members of the Guild. Attack by the Guild on an order of the Federal Trade Commission that they refrain from so doing, was brought for review before the Federal Court of Appeals.

The court said:

"Price fixing is not however, the only means unlawful in itself. The interest of the consumer is not all that determines the unreasonableness of a contract in restraint of trade. It is also unlawful to exclude from the market any of those who supply it—assuming that there is no independent reason by virtue of their conduct to justify their exclusion—and it is no excuse for doing so that their exclusion will result in benefits to consumers or to the producers who remain.

Consumer Must Be Protected

"There is another reason supporting this conclusion. A successful combination among a part of the producers to exclude others, even when not accompanied by an agreement fixing prices, puts into their hands collectively the power to control the supply and with it the price. The fact that power is not at the moment exercised is no assurance that it may not be. If the effort succeeds and the combination is not disrupted it may at any time be used and there will then be no protection to the consumer."⁵

Not content with this conclusion the Guild appealed to the United States Supreme Court where the decision was affirmed.

"The relevance of this section of the Clayton Act to the Guild's scheme," asserted that court, "is shown by the fact that the scheme is bottomed upon a system of sale under which (1) textiles shall be sold to garment manufacturers only upon the condition and un-



"Had the plant been small and the fuel consumption correspondingly less, there would have been no violation of the statute. The wrong lay in the quantity, not in the contract."

derstanding that the buyers will not use or deal in textiles which are copied from the designs of textile manufacturers; (2) garment manufacturers shall sell to retailers only upon the condition and understanding that the retailers shall not use or deal in such copied designs.

"We hold that the Commission correctly concluded that this practice constituted an unfair method of competition."⁶

Only recently the same court denounced the condition made by a Louisiana newspaper publisher that no advertising would be carried in either the morning or evening edition, that was not also carried in the other edition:

"When the seller enjoys a monopolistic position in the market for the 'tying' product or if a substantial volume of commerce in the 'tied' product is restrained, a 'tying' arrangement violates the narrower standards expressed in Section 3 of the Clayton Act because from either factor the requisite potential lessening of competition is inferred.

"And because for even a lawful monopoly it is unreasonable in itself to foreclose competitors from any substantial market, a tying arrangement is banned by the Sherman Act whenever both conditions are met."⁷

Against this background of authorities the District Court, holding the exclusive dealing coal supply contract of the Florida utility a violation of the Clayton Act and void, court said:

"It may be conceded that there are doubtless economic benefits inherent in the use of a requirements contract of this type, and that it seems somewhat harsh to invalidate such a contract, particularly when entered into by the parties of their own free will in the evident belief that it was mutually advantageous and without compulsion or restraint.

Is the Public Served?

"But the court's function is not to determine whether the contract is advantageous or desirable from the standpoint of the parties or the public, but whether it is legal. Under the circumstances two essential conditions are shown to invalidate the contract under Section 3 of the Clayton Act, regardless of its merits or beneficial effects otherwise. First, the contract within the sense and meaning of Section 3 is one requiring the buyer not to use or deal in the goods of a competitor of the seller, and second, the effect of the contract is to substantially lessen competition in a line of commerce."

MEET MRS. PETER PEFF

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Mrs. Peff, president, Superior Air Products, Newark, N. J., with Supairco's recently developed liquid-oxygen "vacuum bottle."

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LEFT: Inside the copper shell in main illustration is this slightly smaller liquid-oxygen container made of Everdur, the metal that spins and machines readily, is easy to join by soldering, brazing, welding. **RIGHT:** Completed liquid-oxygen converter, built by Mine Safety Appliances Company, Pittsburgh, Pa., serves 8-man crew. It is one-third the weight of the cylinder it replaces, takes much less space.

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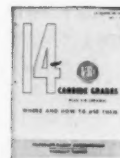


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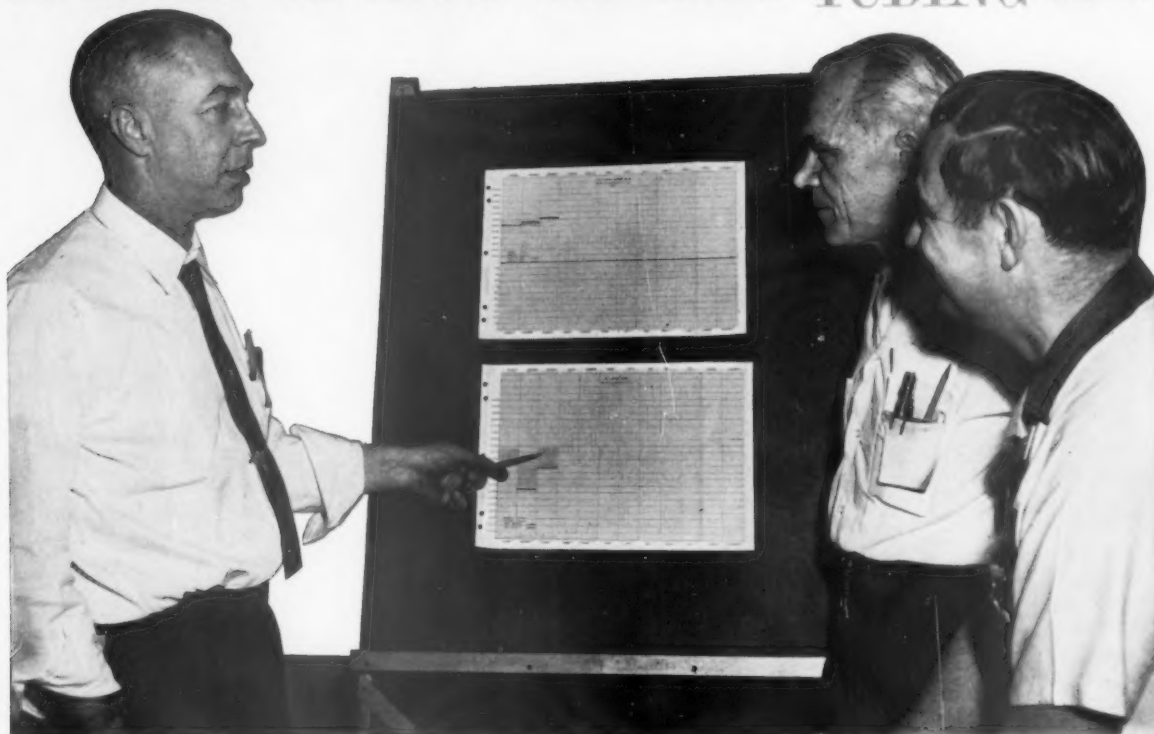
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Ovitron Units: Will They Solve the AC Control Problem?



Simple and compact in design, the Ovitron control units are made to insure trouble-free long-life switching or modulating of alternating current.

"SOME of the people who've seen it operate, say it's as important a development as the transistor."

The quote is from Stanford Ovshinsky, president, Ovitron Corp., Detroit. He's talking about his new Ovitron control unit for switching and modulating high amperage alternating current circuits. What makes the units of particular interest to P.A.'s and design engineers is the fact that they seem to have a virtually unlimited operational life.

Since they have no moving or linking parts, it's just about impossible for them to fail to function properly. This, of course, becomes an increasingly important advantage as automation spreads, because of the importance of preventing costly production shutdown.

According to Mr. Ovshinsky, efforts to improve conventional control devices—such as contact-type switches, magnetic amplifiers, tubes, transistors and the like—have not licked the a-c control problem. An entirely new approach to static switching is needed, says Mr. Ovshinsky. And he believes his Ovitron units are the answer.

Based on Nerve Cell

The idea for the Ovitron control units was inspired in part by a theoretical study of the func-

tion of nerve cells. In design the Ovitron units consist of two load-connected electrodes and a grid control element—all immersed in an electrolytic void. The unit is permanently sealed within an encapsulated container. When a small energy stimulus is introduced through the grid element, the semi-permeable surfaces of the two load electrodes become permeable to certain ions and are instantly transformed from their non-conductive state to a conductive state. This makes it possible for the current to flow from one electrode to another through the electrolyte. During operation, small amounts of gas are formed as current flows through the electrolyte. However, there is no loss of electrolyte because a catalyst is used to transform the gas back into solution.

The high wattage load current is controlled entirely by the small energy stimulus introduced in the grid element—and in a manner which permits either full-on, full-off switching or modulation to occur. Modulation can be of the continuous type without harming the unit or its operating characteristics.

When the control signal is removed from the grid control element—or when another signal of opposite polarity is applied, the conductive surfaces of the electrodes are immediately restored

to their original non-conductive state. As a result, the flow of current through the unit is blocked.

With this radically new approach to power circuit controls, the Ovitron units are capable of switching or modulating almost any amount of alternating current endlessly and continuously, without wear, disintegration, or loss of efficiency—and without using moving parts, magnetic coils, or other bulky apparatus.

Obviously the potential applications for the Ovitron control units are tremendous—since they could conceivably be used anywhere that controls for alternating current are needed. So far working models have been developed tested in the lab for use as: Proximity switches, logic devices, modulators, circuit breakers, error detectors, amplifiers, regulators, and time delays.

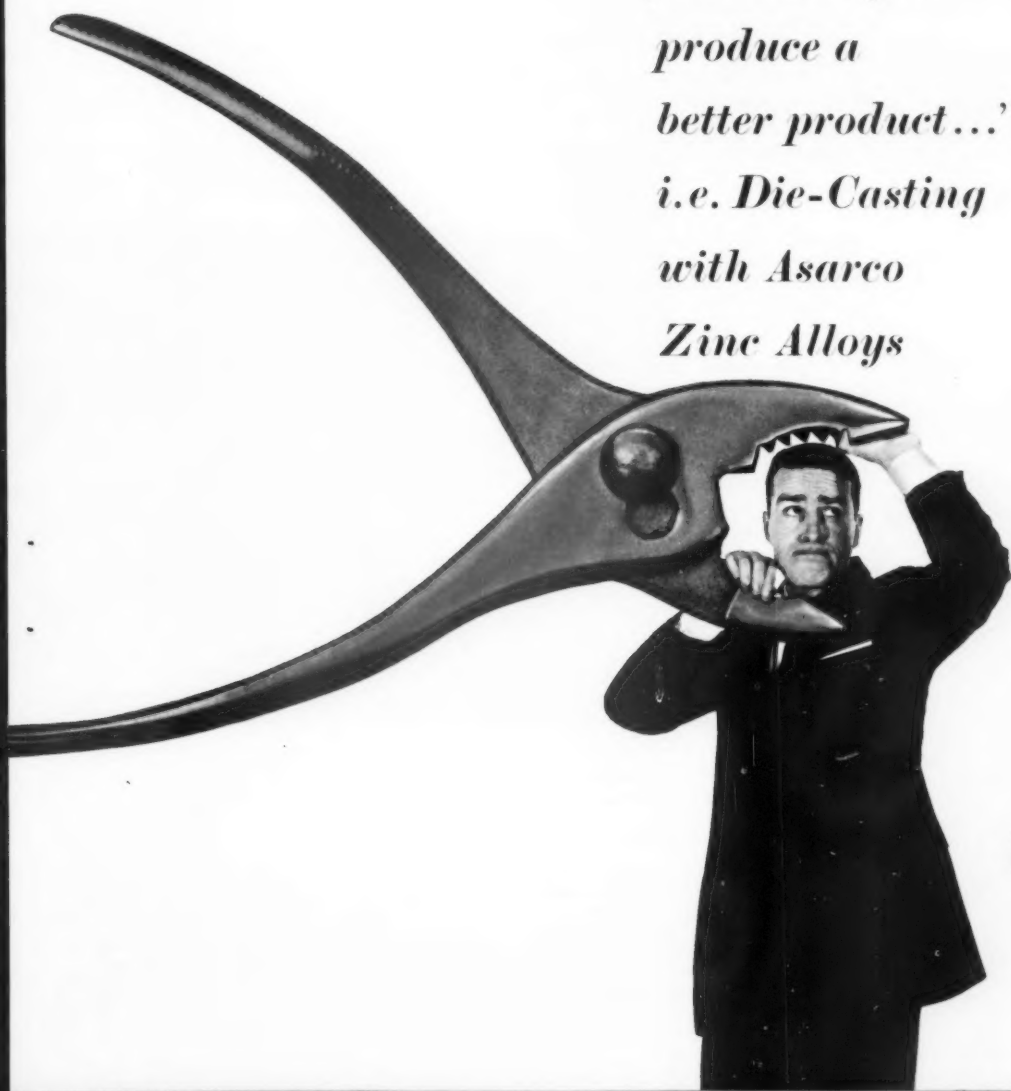
The first sale Ovitron has made of its new unit was to the auto industry. At present, the company is only accepting orders after it has approved applications from prospective customers. Since the unit is a simple, mass-production item, Ovitron is mainly interested in large volume orders. Cost of the control units is still not firmly pegged. All Mr. Ovshinsky would say is that Ovitron controls will be "priced competitively . . . somewhere between \$5 and \$150 per unit."

For More Information Write No. 208
on Inquiry Card—Page 22→

PURCHASING

*"the fast way
out of today's
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through the use
of more efficient
materials which
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machine and
fabricate, yet
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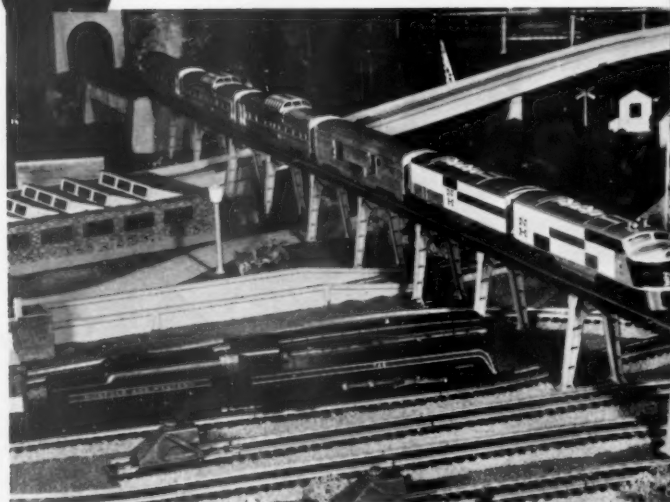


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Every designer will sit up and take notice when he sees how easy it is to produce miniature objects with movable parts, even linkage, in one Di-Metal zinc casting. This is actual size of die-cast scissors.



Zinc die-casting provides the hardware field with the smooth cast surfaces so necessary in producing an attractive, lasting finish.



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There's a big swing in metal parts production today to die casting with zinc—and it certainly makes good sense.

For one thing—Federated Di-Metal (alloyed from Asarco's Special High Grade Zinc 99.99 plus % pure) is lower in material cost.

But the big savings come in production. The low melting point of Federated Di-Metal cuts casting time to the bone. Die casting at lower temperatures calls for less expensive dies—and they last far longer.

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Die casting with Federated Di-Metal can produce the most complex shapes, the thinnest section walls, the smoothest casting surfaces. The castings have impact strength and other mechanical properties superior to other casting metals (with the possible exception of copper which, of course, costs more). And zinc die-castings can be readily electroplated or coated.

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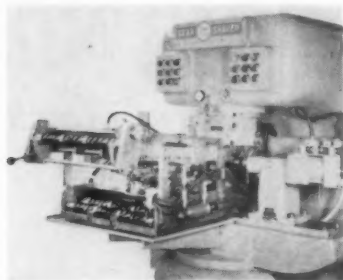
Swaged Electrical Conduit Assemblies



Swaged electrical conduit assemblies are available in a new line for heavy-duty industrial applications. Assemblies can be furnished with sheaths of pipe or tubing in sizes up to 1 in. O.D. in stainless and cold rolled steels, aluminum, copper, iron or Inconel. Other sheath materials may be had on request, and single or multiple wire construction is available in solid "ceramic-pack" insulation. Heavy-duty assemblies can be used as electrical conductors, heating elements or thermocouples in steel mills, foundries, heat-treating furnaces and refineries. **Advance Dynamics, Inc.**

Write No. 18 on Inquiry Card—Page 32

Slide-Type Loader for Long, Slender Parts



A new slide-type loader is designed to handle long, slender parts on gear shaving or gear honing machines. Red Ring loader features an air-cushioned exit motion and an air-powered steady rest and is fully automatic. All that is required of operator is to keep inlet magazine full of parts and remove the finished parts from the exit chute. Loader can also be installed in fully automatic lines. **National Broach & Machine Co.**

Write No. 19 on Inquiry Card—Page 32

AUGUST 17, 1959

Questions from the floor



Are you getting most floor absorbent bulk (not weight!) for your money?

Does your floor absorbent become saturated before it does its job?

Does your floor absorbent create new hazards by absorbing light, thus reducing needed working light?

Does your floor absorbent "mud up" with oil and water?

THERE'S A TEST THAT ANSWERS ALL THESE QUESTIONS

In less than 15 minutes in your own office, you can get all the right answers scientifically. Our Eagle-Picher representative will bring a miniature laboratory right to your desk. Compare Eagle-Picher Floor-Dry with any other floor absorbent. See which wins out on overall economy and full-range safety. Eagle-Picher is eager to face comparative tests. Write today.

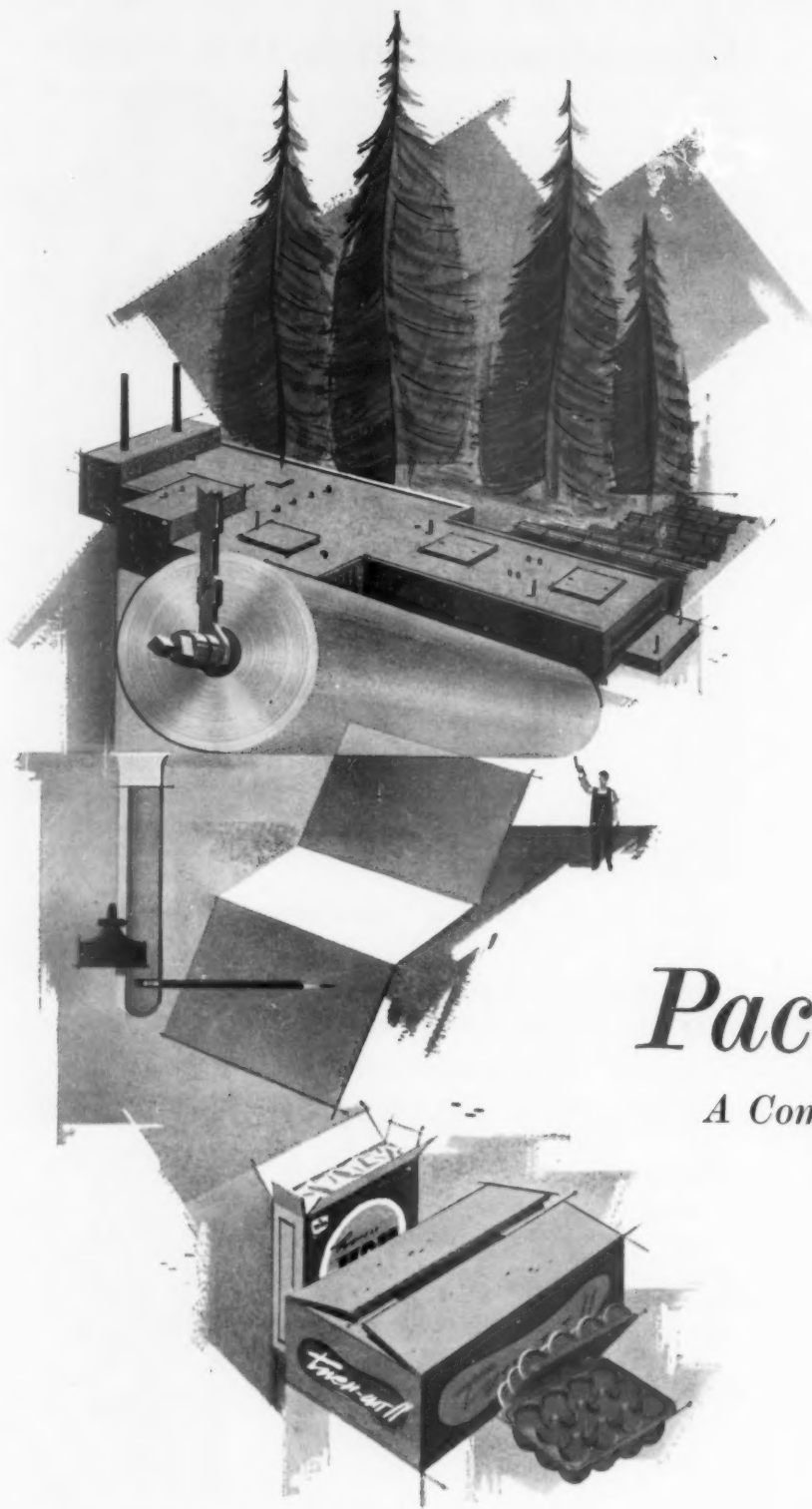


Since 1843

EAGLE-PICHER

The Eagle-Picher Company
Dept. P817, Cincinnati 1, Ohio

For More Information Write No. 209 on Inquiry Card—Page 32



Packaging

A Completely Integrated

Cartons • Containers • Displays •

American Box Board Company,
Central Fibre Products Company and
The Ohio Boxboard Company

Announce Their Merger, Forming...

Packaging Corporation of America

National Network of Packaging Services

Users of packaging, whether their requirements are large or small, regional or national, can now benefit from the expanded services offered by Packaging Corporation of America. Complete integration — from vast timberlands, through 8 mills and 41 converting plants — assures dependable delivery . . . consistently high product quality.

Each of the merging companies — all approximately equal in size . . . each a major supplier in its own region — brings its own special productive abilities. Now, Packaging Corporation of America offers the coordinated facilities, the broad geographic coverage and the talents of over 7,000 experienced men and women as a complete packaging service.

Packaging Corporation of America,

Administrative Offices: Grand Rapids, Michigan; Quincy, Illinois; Rittman, Ohio.

Egg Packaging Products • Molded Pulp Products • Paperboards

For More Information Write No. 210 on Inquiry Card—Page 32



Photograph by Bruce Davidson

TOM JONES AND HIS GENERAL STORE

If it's aluminum, Tom Jones has it. You can call Tom or any other Alcoa district sales manager and get aluminum in particles so small that 15 billion just fit a teaspoon . . . closed die forgings up to 13 ft long from the 50,000-ton press we operate for the Air Force . . . or decorative sheet that shimmers with light from millions of spangles beneath its satin surface.

But Alcoa has less fancy items, too. Castings from the simplest sand mold to intricate forms in plaster molds. Screw machine stock that knows no limit on the rate of feeds and speeds, except the capacity of the screw machine itself. A heat-resistant alloy that sets records for strength at 600° F.

With more commercial forms of aluminum in every temper, size and alloy,

Alcoa can sell without bias, filling orders to fit your needs and not to suit the limitations of a lesser product line. It's another way we put more than 16 ounces of metal into every pound of Alcoa® Aluminum and another added value you gain each time you call your local Alcoa sales office. Aluminum Company of America, 2017-H Alcoa Building, Pittsburgh 19, Pa.



ALCOA helps you design it, make it, sell it



Alcoa has hundreds of Tom Joneses to help you design it, make it, sell it

All of Alcoa's skills are mobilized to a single purpose: To put more than just 16 ounces of metal in every pound of Alcoa Aluminum you buy. Here are 12 of the dozens of ways to do it:

- 1. Research Leadership**, bringing you the very latest in aluminum alloys and applications.
- 2. Product Development** by specialists in your industry and your markets.
- 3. Process Development Labs** for aid in finishing, joining and fabricating.
- 4. Service Inspectors** to help solve production problems at your plant.
- 5. Quality Control** to meet top standards or match your special needs.
- 6. Complete Line** including all commercial forms, alloys, gages, tempers.
- 7. Availability** via the nation's best stocked aluminum distributors.
- 8. Foremost Library** of films and books to help you do more with aluminum.
- 9. Trained Salesmen** with a wealth of on-the-spot information.
- 10. Sales Administrators** constantly on call to service your orders.
- 11. Year-Round Promotions** expanding your old markets, building new ones.
- 12. The Alcoa Label**, leading symbol of quality aluminum, to mark your goods.

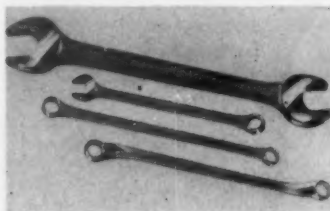
Added Values With Alcoa Aluminum



... is a case book of Alcoa special services and a guide to their availability in design, manufacture and sales. Your copy, with some of the most rewarding information you may ever read, is waiting and it's FREE. Write: Aluminum Company of America, 2017-H Alcoa Building, Pittsburgh 19, Pa. For More Information Write No. 211 ← on Inquiry Card—Page 32
AUGUST 17, 1959

Products

Improved Design in Wrench Line



Improved design gives new advantages to "Superrench" line. Four styles of wrenches are offered in all sizes—open-end, combination, box-open end, and 15 and 45 degree offset box wrenches. Many improvements have been made, including slimmer, more comfortable handles, smoother contours, and strong thin heads that allow maximum clearance in close quarters. New design gives "balanced feel" throughout all sizes. **J. H. Williams & Co.**

Write No. 20 on Inquiry Card—Page 32

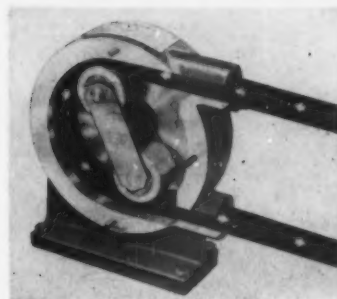
Giant-Sized Horizontal Band Saw



A giant horizontal band saw has a capacity of 40x40 in. and cuts large die blocks, solids, and structural steel, as well as aluminum, carbon, plastics and many other materials. Saw is being built in two series, "light" and "heavy." Light series is recommended for aluminum, carbon, plastics, etc., the heavy for die blocks, solids, and structurals. New saw weighs 8000 lbs, is 109 in. side to side, 96 in. front to back, and 112 in. high. Blade length is 26 ft. 9 in. x 1 1/4 in. x .035 in. **W. F. Wells & Sons.**

Write No. 21 on Inquiry Card—Page 32

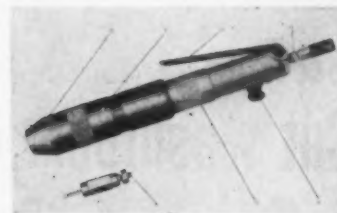
Pump for Corrosives, Gas and Sterile Solutions



A new pump is intended for industrial and laboratory handling of corrosives, abrasive slurries, sterile solutions and gases. Offered in two models—54 and 185 gallons per hour—pump eliminates all contact of moving parts with material being pumped. A flexible tube passes through the pump body where it is exposed to the squeegee action of a double rotor, producing an even flow of liquid or gas through the tube. New pump is available with speed controls and explosion-proof fittings, with or without motor. **Randolph Co.**

Write No. 22 on Inquiry Card—Page 32

Fast and Reliable Speed Torque Driver

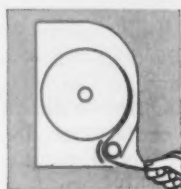


Wing-nut type Kelko fasteners can now be removed at a speed comparable to that achieved with plunger type clamps, without damage to work or fastener, by use of pneumatic speed torque driver. Adjustable clutch on new driver allows pre-setting for exact torque and uniform clamping tension for pressures ranging from 0 to more than 600 lbs. When pre-set value is reached, driver automatically disengages. "Swirl" marks on work surface and twisting of clamp needles are eliminated. **Monogram Precision Industries, Inc.**

Write No. 23 on Inquiry Card—Page 32



Steiner controlled towel dispensers Cut washroom costs three ways



HOW IT WORKS: Towels are in roll. User pulls towel down and tears up. Control mechanism turns roll so another towel is ready for next user. Result: every user gets enough towels but there is no waste.



First: You'll save with Steiner Company controlled paper towel dispensers because *controlled* dispensing cuts towel waste . . . as much as 20 per cent. Second: You'll reduce washroom maintenance costs because cabinet holds about 500 towels . . . coupled with waste cutting, this means supply lasts longer and cabinet has to be refilled less frequently. Third: You can reduce your inventory and free valuable storage space for other supplies. Reason: A case of Steiner roll towels is the same size as a case of folded . . . yet it holds twice as many towels.

Your local janitorial supplier or sanitary paper distributor can help you . . . there is no charge for the dispensers. For free literature please write to Steiner Company, 740 Rush St., Chicago 11, Ill.

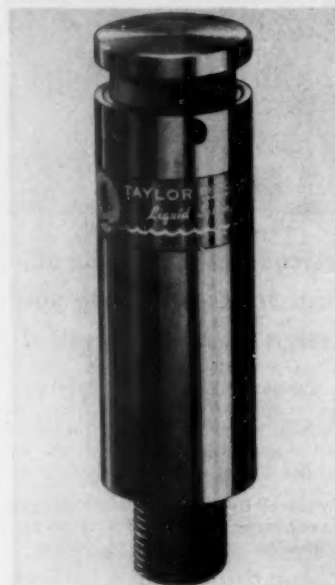
STEINER COMPANY

740 RUSH STREET, Dept. C-8, CHICAGO 11, ILLINOIS

For More Information Write No. 212 on Inquiry Card—Page 32

Products

Short-Stroke, High-Force Liquid Springs



A new short-stroke, high-force spring using liquid compressibility can provide a preload from 500 to 5000 lbs. Although new unit is only 1¼ in. in diameter and 3½ in. long, spring force increases 200 lbs. with each ten thousandths of an inch stroke plus dampening forces of 6000 lbs. maximum energy absorption of 1500 inch pounds. In addition to spring function, liquid springs can also serve as shock absorbers and be used to relieve excessive loads on structures or tools. **Taylor Devises, Inc.**

Write No. 24 on Inquiry Card—Page 32

Two New Wilson-Snyder Pumps



Two new models have been added to U. S. Steel's Wilson-Snyder
(Please turn to page 114)

PURCHASING

News! The best features of
modern bearing design combined and refined in

Spherical

SELF-ALIGNING ROLLER BEARINGS BY LINK-BELT

BIG, mirror-smooth convex rollers plus heavy, broad-shouldered inner race plus centrifugally-cast bronze, precision-machined retainers! Only from Link-Belt do you get ALL that is best in modern bearing design.

Individually, these elements represent major improvements on accepted design concepts. Collectively, they constitute the most efficient spherical roller bearings available . . . promise unequalled economies, whatever the application.

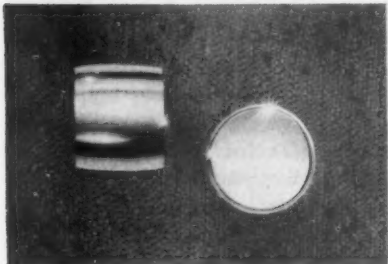
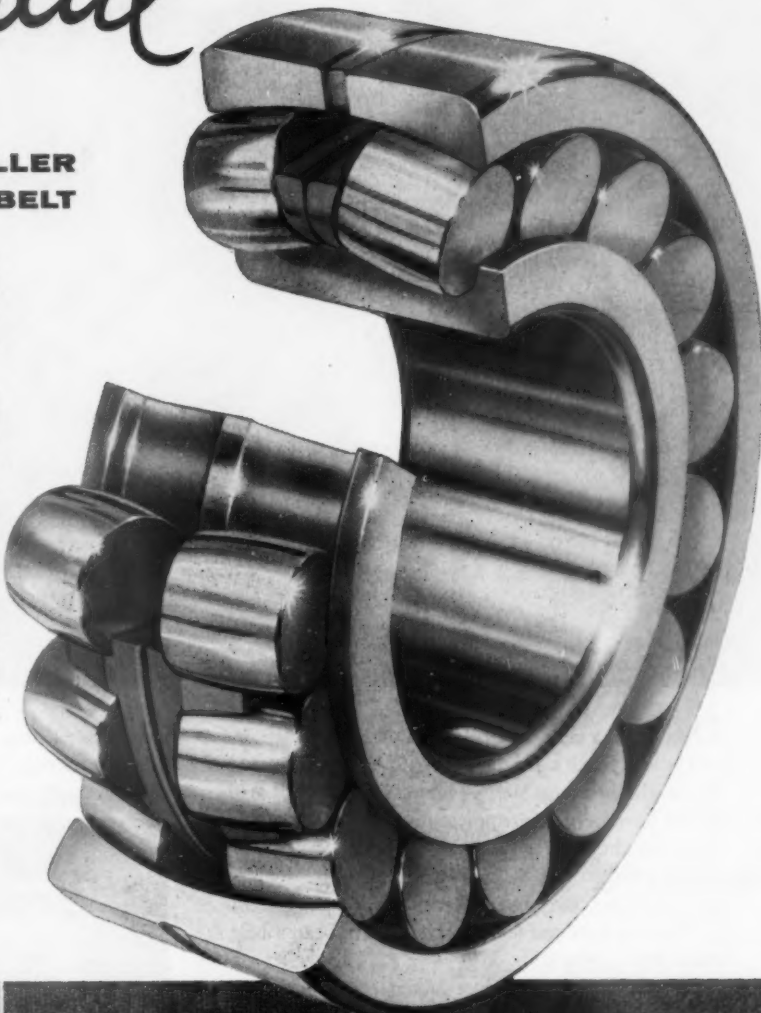
Your Link-Belt office or authorized stock-carrying distributor will gladly explain the many performance advantages evolved with this new design. And either can furnish full data on industry's most complete line of ball and roller bearings . . . pillow blocks and flanged, flanged-cartridge, cartridge and take-up blocks.

LINK-BELT

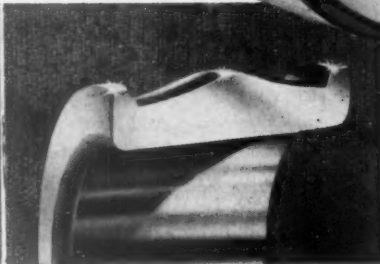
**MANUFACTURERS OF SELF-ALIGNING
BALL AND ROLLER BEARINGS**

LINK-BELT COMPANY: Executive Offices,
Prudential Plaza, Chicago 1. Plants,
Sales Offices and Distributors in All
Principal Cities.

14,819



BIG, HIGHEST-CAPACITY ROLLERS. Each bearing has a maximum number of rollers—as large as possible, yet all components are in optimum balance.



HIGH, HEAVY INNER RACE FLANGES present convenient hold for assembly and removal of bearing without cutting away shaft, avoid any need to skimp on shaft shoulders.



PRECISION-MACHINED, CENTRIFUGALLY-CAST BRONZE RETAINERS have many times more support and ability to withstand high stress. They are not stampings. Design assures maximum bearing efficiency.



How
NOSCO
METALLIZING
 Saved the
 Widget Market

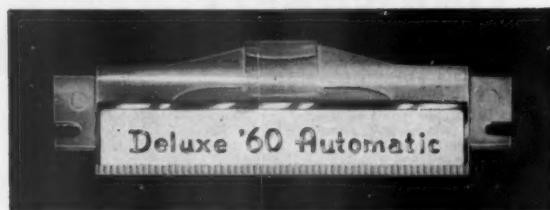
Once upon a time, in a bright shiny research laboratory, there lived a bright young inventor. He could invent the best anything—everyone knew that. He should have been the happiest inventor in the whole world. But he wasn't.

The problem was his newest machine, the double-reverse-widget, the biggest, best, lowest priced, most . . . But, you have the idea. It should have been a best seller. But it wasn't.

The double-reverse-widget lacked eye appeal. But re-designing was impossible, because everyone knows widgets have a very short selling season. So the inventor grew sadder . . . until Nosco's "Can Do" man arrived and suggested plastic metallizing.

Together they quickly sketched a low-cost nameplate with gold, silver and vivid colors proclaiming this widget to be the most. Nosco put the sketch into practical design and produced thousands almost overnight . . . because they back up "Can Do" with auto-

mated metallizing facilities, mechanical spray painting, quality-controlled hot stamping and apple pie order in all their production processing, as everyone well knows.



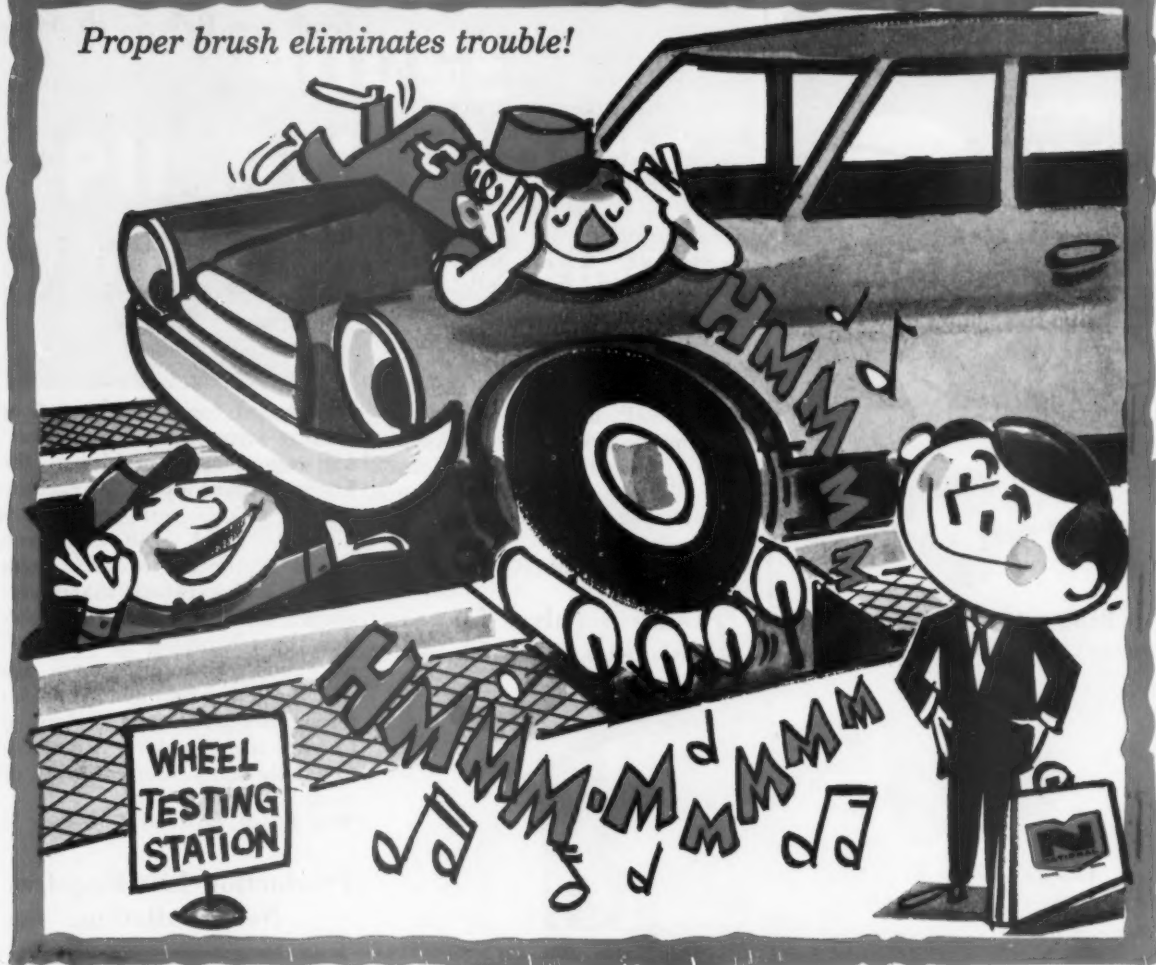
The rest is history. With the nameplate, sales skyrocketed and the bright young inventor was happy. And he stays happy by always checking to see how Nosco "Can Do" will help all his new projects.

Metallizing can add punch to your items, too. And Nosco's complete facilities guarantee fast service, plus top quality and production cost savings. To learn exactly how you can benefit, just write or call.


NOSCO plastics, inc. • Erie 5, pa. *One of the world's great injection molders.*

For More Information Write No. 214 on Inquiry Card—Page 32

Proper brush eliminates trouble!



High speed testing device

lasts 500% longer with  **NATIONAL** brushes



JOHN GIBB

Commutator burn-outs slowed development of this high speed spinner for testing and balancing wheels. This was a specialized application, says "National" Carbon Brush Man, John Gibb. He worked with the customer to apply a brush grade best suited for the job. A more versatile brush was needed to cope with widely fluctuating loads.

The choice: "National" Brush Grade F-72.

The result: up to 500% longer life.

It's never too early to call in your "National" Carbon Brush Man. His specialized knowledge — and "National" long-term brush development — may be just what you need to speed product development.

Call your local "National" office or write to National Carbon Company, Division of Union Carbide Corporation, 30 E. 42nd St., N. Y. 17, N. Y.

"National", "N" and Shield Device, and "Union Carbide" are registered trade-marks of Union Carbide Corporation
NATIONAL CARBON COMPANY • Division of Union Carbide Corporation • 30 East 42nd Street, New York 17, N. Y.
 OFFICES: Atlanta, Chicago, Dallas, Houston, Kansas City, Los Angeles, New York, Pittsburgh, San Francisco • CANADA: Union Carbide Canada Limited, Toronto

For More Information Write No. 215 on Inquiry Card—Page 32

AUGUST 17, 1959





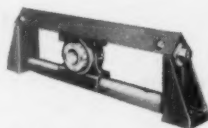
DIAMOND D CLUTCHES

Rugged! Compact! Completely enclosed!



TAPER-LOCK STEEL CONVEYOR PULLEYS

Maximum strength with minimum weight!



DODGE TAKE-UPS

Complete range of stock models, sizes.

Write for Bulletins!

- ✓ Diamond D Clutches—technical data.
- ✓ Conveyor Pulleys—technical data.
- ✓ Take-Ups—Roller, Ball, Babbitted.

DODGE MANUFACTURING CORPORATION
1300 Union Street • Mishawaka, Indiana

DODGE

of Mishawaka, Ind.

For More Information Write No. 216
on Inquiry Card—Page 32

Products

(Continued from page 110)

Snyder line of centrifugal and reciprocating pumps. A new 500 H.P., 16 in. double volute, double suction centrifugal pump is capable of delivering 12,000 gallons a minute to a 150-foot head. Designed primarily for water supply transfer service and other large capacity, relatively low-pressure operations, it will be produced on special order to permit customer choice of materials to fit specific needs. The second pump, 246-P, is a 28.5 H.P. general service reciprocating pump with a capacity of 126 gallons per minute and a maximum working pressure of 600 lbs. per square inch.

Write No. 25 on Inquiry Card—Page 32

Control Valves for "Hard-to-Handle" Fluids



Handwheel operated control valves in a new series are particularly suited to solving corrosion and erosion problems in connection with hard-to-handle process liquids. Featured is a single-seated valve body with extra thick body walls cast to 600 lbs. ASA rating. Conoflow Series LM valves come in ductile iron, steel, bronze, and many high alloys, and a complete range of sizes from 3/4 in. through 6 in. is available. Tight shut-off is guaranteed through use of special seat materials, and split valve body allow quick disassembly for inspection and maintenance.

Write No. 26 on Inquiry Card—Page 32

Fork Truck with Load Grab and Bale Grab Arms



Designed for use where floor loading capacities and maneuvering are major problems, the Lewis-Shepard Model "J" Electric Fork Truck is equipped with a new load grab with bale grab arms. Minimum overall truck weight and excellent maneuverability make it ideal for light-duty bale handling in the small warehouse. Bale grab arms are quickly detachable and easily interchanged with wide variety of Cascade arms, making it possible to handle many different types of loads.

Write No. 27 on Inquiry Card—Page 32

Production Lift Requires No Installation

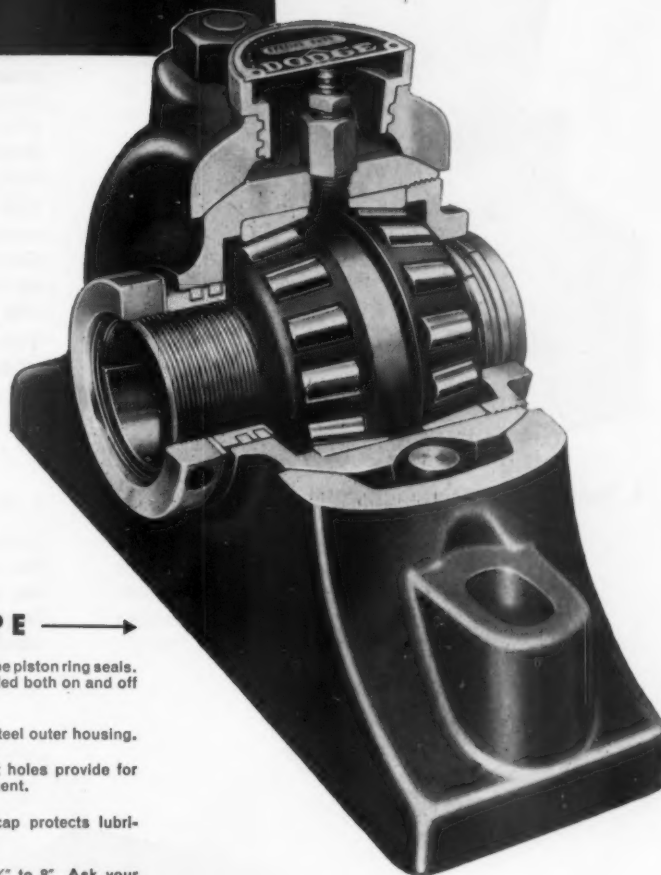


A new lift for production line feeding and receiving requires no installation. Available in any platform size or lifting capacity, lift can be customized to feed and receive conveyors, presses, stamping machines, paper machines, and scores of other applications. Automatic controls may be set to raise and lower at desired speeds and heights. Semi-portable unit may be rolled readily. Completely lowered, it is flat and out of the way of other work. Autoquip Corp.

Write No. 28 on Inquiry Card—Page 32

DODGE PILLOW BLOCKS WITH TIMKEN BEARINGS

America's super-quality line—
with a 35 year record of keeping
performance *up* and costs *down*!
Five types—to fit practically
any service condition. All as-
sembled, adjusted, lubricated
and *sealed* at the factory for
precision performance—long
life—dependability.



SPECIAL DUTY TYPE →

- Designed for extreme precision and high load capacities.
- Fully self-aligning.
- Special Duplex Timken Roller Bearing with tapered bore.
- Split tapered sleeve with straight cylindrical bore extends through entire length of housing.
- Easy to mount or demount. Adapter nut (or collar) clamps adapter sleeve to shaft with extreme firmness.
- Automotive type piston ring seals. Bearing is sealed both on and off the shaft.
- Rugged semisteel outer housing.
- Elongated bolt holes provide for lateral adjustment.
- Special dust cap protects lubrication fitting.
- Shaft sizes $1\frac{1}{2}$ " to 8". Ask your local Dodge Distributor—or write us for Bulletin A670 giving complete technical data on America's most complete line of mounted bearings.

DODGE MANUFACTURING CORPORATION, 1300 Union St., Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable help on new, cost-saving methods. Look in the *white* pages of your telephone directory for "Dodge Transmissioneer."



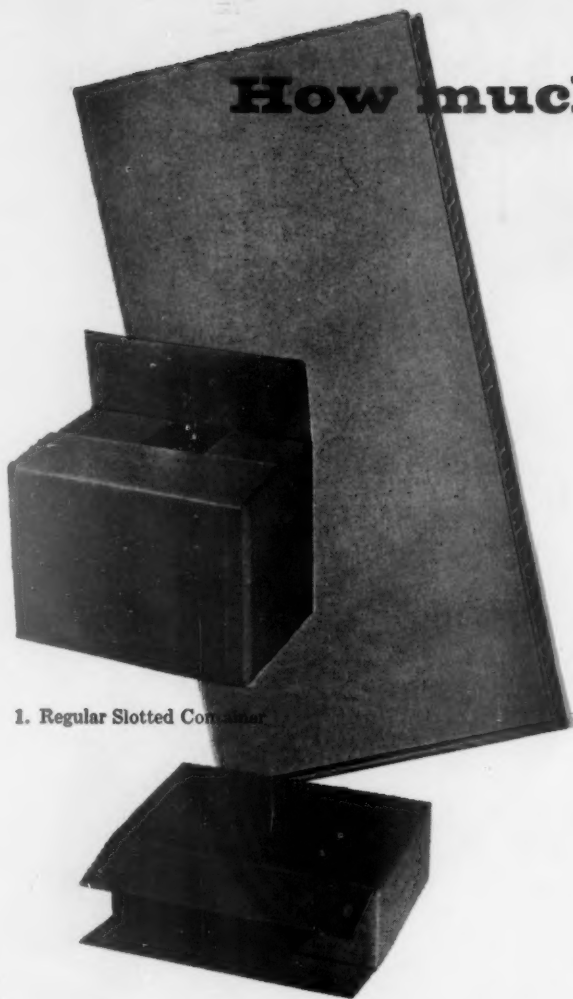
DODGE
→ of Mishawaka, Ind.

How much tailoring does

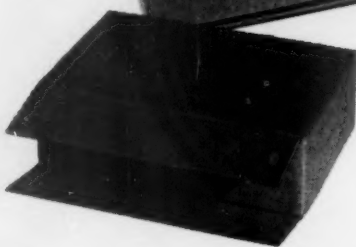
Picking the proper corrugated shipping carton is like buying a suit. Rarely will a ready-made, "off-the-shelf" unit fit perfectly. Some modifications usually are needed; possibly even a complete custom-built job. It all depends on your product and how it is normally handled and shipped.

You may find, for example, among the representative basic box types shown here one that's just right for you. Or perhaps further structural design work would enable you to ship more efficiently and economically.

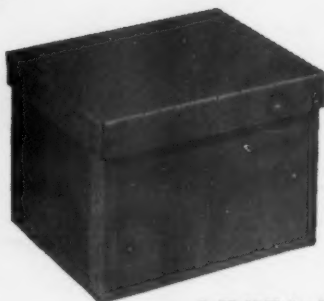
Talk it over with your local Union Box representative. He's an expert at pin-pointing all the pertinent factors. And at recommending or helping develop the most practical box for your needs.



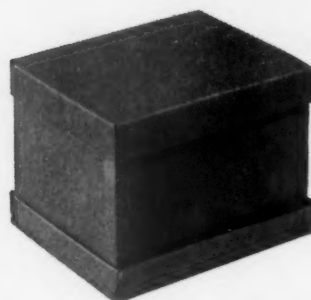
1. Regular Slotted Container



2. Special Flap Slotted Container



3. Half Slotted Container



4. Double Cover Box

about types of Union Boxes

your shipping container need?

protection your product needs.

Similar to the "Regular Slotted" is the "Center Special Slotted Container". Top and bottom areas are stronger; both inner and outer flaps meet at box center.

2. Special Flap Slotted Container

There are two kinds of "Special Flap" boxes. In one, the top and bottom flaps partially overlap. In the other (shown left) they overlap completely, providing double thickness at top and bottom. When strapped shut, flaps override each other, form snug, non-butting closure. If glued, adhesive covers full flap, assures extra safe, durable bond.

3. Half Slotted Container

Bottom is similar to Regular Slotted Container. Flanged cover is sent as a blank for set-up by shipper. Good as combination shipping shelf package. Without cover, used for batteries, other heavy, small items. Also, as a transfer file or stock box.

4. Double Cover Box

Ship heavy items where strapping is necessary? This three-piece box with telescoping covers might be just the ticket. Excellent stacking strength; strong covers take rough handling. Often used in large sizes for bulk packs on pallets.

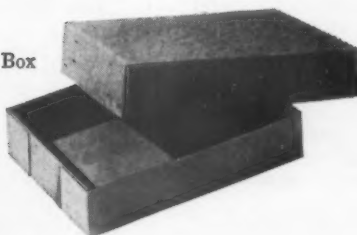
5. Telescope Box

You'll probably need a box like this if you ship flat items such as paper, books, advertising material, etc. It protects with a double build-up of sheet around sidewalls and corners which also gives you maximum stacking strength. May be constructed as a full telescope (see below) or as a partial telescope.

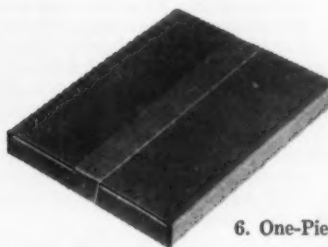
6. One-Piece Folder

Another excellent shipper for books, catalogs, etc. Packs and closes quickly and easily. Mostly used for parcel post and express shipments. Also made up as "One-Piece Special Folder" where all flaps meet in center.

5. Telescope Box



6. One-Piece Folder



Write for new, informative booklet, "Types of Corrugated Boxes."

UNION BOXES

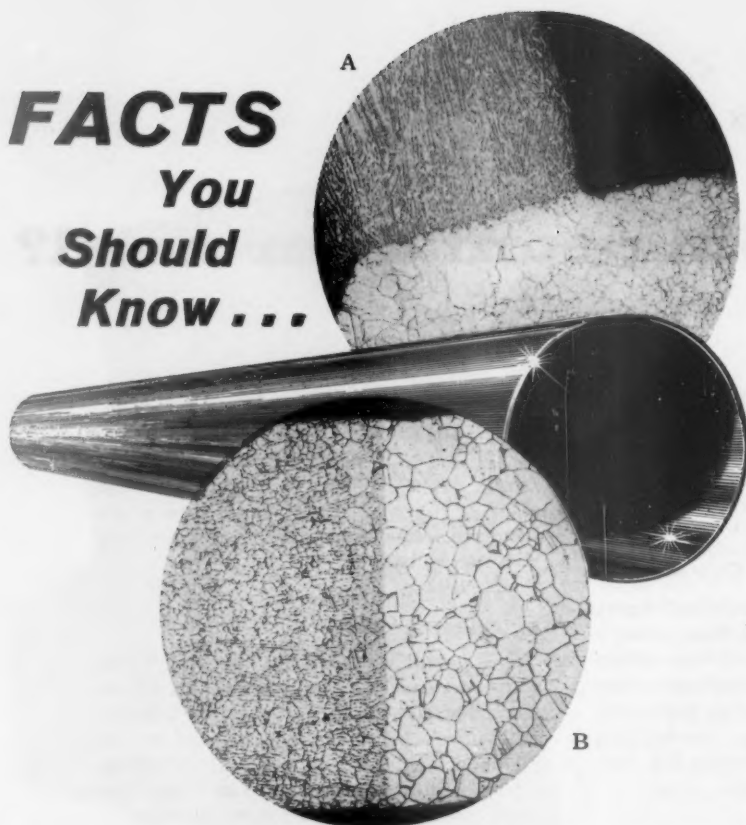
UNION BAG-CAMP PAPER Corporation

233 BROADWAY, NEW YORK 7, N. Y.

Factories: Savannah, Ga., Trenton, N. J., Chicago, Ill., Lakeland, Fla.

Sales Offices: Eastern Division—1400 E. State Street, Trenton, N. J.
Southern Division—P.O. Box 570, Savannah, Ga.; P.O. Box 454, Lakeland, Fla.
Western Division—4545 W. Palmer, Chicago, Ill.

FACTS You Should Know...



about the **DIFFERENCE** in **Stainless Steel Tubing** —

Both photographs above show the microstructure of the weld and base metal of Type 304 stainless steel tubes. Photograph A reveals accelerated corrosion of the weld metal due to the presence of delta-ferrite. This tube was manufactured by welding, swaging and annealing, which is an insufficient amount of cold work to produce a high quality, uniformly corrosion-resistant welded tube.

Photograph B shows a typical tube supplied by Wallingford Steel. This tube was produced by the welding and cold drawing process, then inspected with a Magne Gauge to insure no ferrite was present in the weld metal.

Processed and inspected in this manner, Wallingford Cold Drawn Tube is guaranteed to show no preferential attack in weld area.

All Wallingford welded stainless steel tubing is cold drawn and inspected by Magne Gauge. *Can your suppliers say this about the stainless steel tubing they produce?* Wallingford's manufacturing techniques and quality control checks assure top quality — yet cost you no more. Why not purchase your tubing where tonnage is produced on a laboratory basis?

THE WALLINGFORD STEEL CO.



Progress in Metals for over 37 Years

WALLINGFORD, CONN., U.S.A.

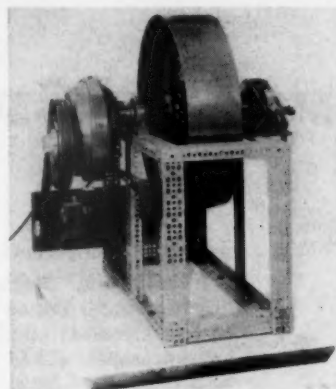
COLD ROLLED STRIP: Super Metals, Stainless, Alloy

WELDED TUBES AND PIPE: Super Metals, Stainless, Alloy

For More Information Write No. 219 on Inquiry Card—Page 32

Products

Speed Reducer Eliminates Auxiliary Motor Rails



A double-reduction, shaft-mounted speed reducer with an adjustable torque arm eliminates any need of auxiliary motor rails for belt take-up. "Offset Shaft-King" is available in two reduction ratios—13 to 1 and 20 to 1—and six capacities to handle fractional to 40 HP drives. Input shaft of speed reducer is offset from output hub, with the offset design providing a simple means of taking up belt stretch from primary drive. Speed reducer mounts on shaft of driven machine by tapered-bushing arrangement and is driven by a motor of any make. **American Pulley Co.**

Write No. 29 on Inquiry Card—Page 32

Hand Protection for Industrial Workers



A new protective lotion provides invisible protection against (Please turn to page 122)

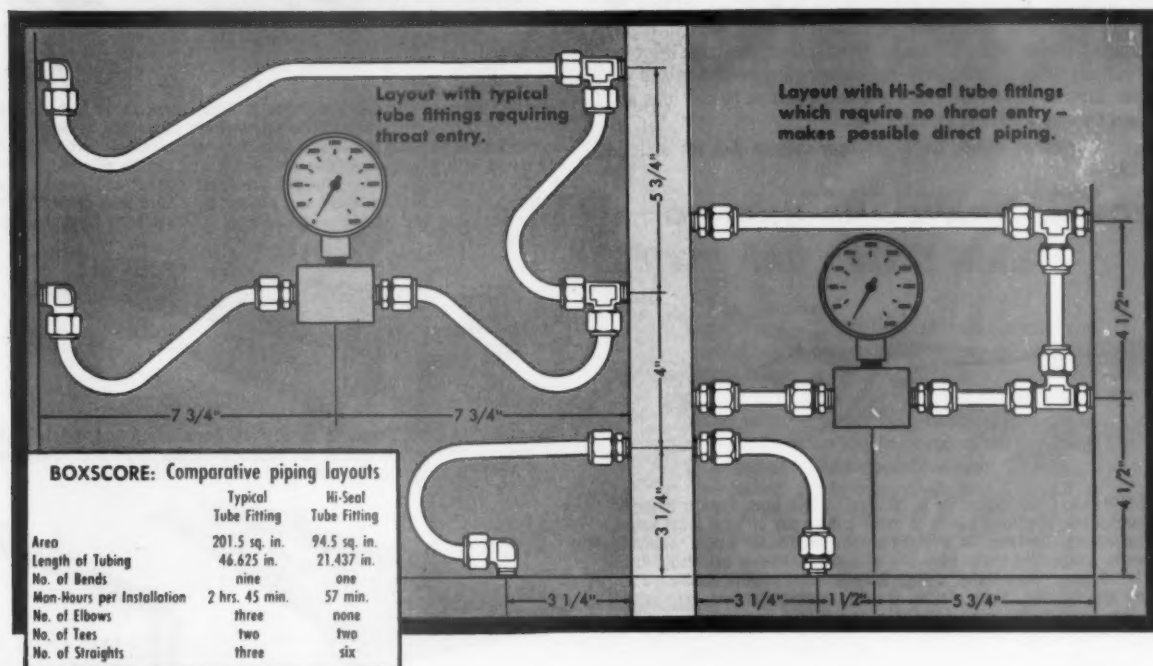
PURCHASING

IMPERIAL

Engineering and Data File



ENGINEERED TUBE FITTINGS — VALVES — TUBING TOOLS



How Hi-Seal saves space — cuts costs

... makes possible reductions up to 50% in required piping area... up to 66% in installation time!

Imperial Hi-Seal tube fittings open up economical new piping design concepts for instrumentation, hydraulic circuits, and other tubing installations. Hi-Seal makes possible far more compact layouts than can be made with conventional fittings — in addition, it brings new ease and speed to joint making and utmost reliability.

These design considerations are illustrated in the tubing layouts above. The diagrams show how Hi-Seal actually eliminated nine tube bends... saved more than one-half on tubing needed. Total layout area required by Hi-Seal is only 94.5 sq. in., compared to 201.5 sq. in., when an ordinary fitting is used. And 189% more manhours were required to tube up the circuit with a typical fitting.

Several key fitting design factors account for Hi-Seal piping economies: (1) Hi-Seal makes a positive butt joint — no need to spring tubing; (2) speedy, foolproof assembly — it is impossible for the fitting to be assembled with the alloy steel sleeve in reverse position; (3) there is no danger of over-torquing... when

threads on body of fitting are covered, a pressure-tight seal has been made, a visual assurance of a correct joint; (4) under tests, Hi-Seal fittings have withstood pressure of 4,000 psi at conditions of -320° F. to over 700° F.



with no leakage; (5) Hi-Seal fittings can be disconnected and reconnected as often as desired.

Complete line — Hi-Seal fittings are available in brass, steel, stainless steel. Also furnished in Titanium, Tantalum and other metals. Steel fitting supplied with cadmium plate or black phosphate finish. Conform to J.I.C., A.S.M.E. and A.S.A. standards. In sizes for 1/8" to 1 1/2" O.D. tubing. Furnished with Long Dryseal pipe threads or straight thread port seal.

Write for Bulletin No. 3061

THE IMPERIAL BRASS MFG. CO.
6300 W. Howard St., Chicago 48, Ill.

In Canada: 18 Hook Ave., Toronto, Ont.

New high-pressure valves assemble directly to tubing — eliminate additional fittings

A revolutionary new line of Imperial needle valves designed for working pressures up to 5,000 psi., and temperatures to 450° F., employs Hi-Seal tubing connections.



Write for Bulletin 3096,
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IMPERIAL



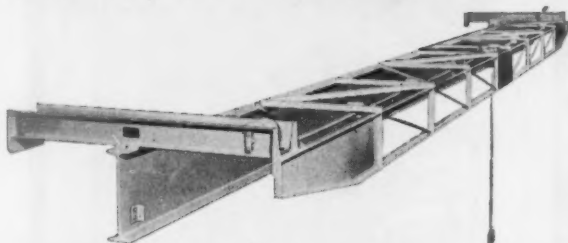
BUY OR BUILD YOU SAVE WITH MMM CRANES

New economy, safety and load-handling efficiency can be yours with an MMM Crane. More than 70 years of crane-building experience is your assurance of the finest workmanship, materials and structural and operational features.

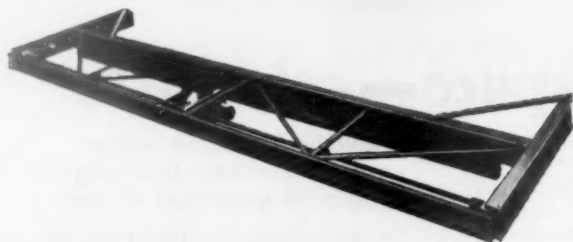
"Build-it-yourself" components are available to assemble bridges for cranes up to 10 tons and spans to 50 feet. Pre-engineered, highly standardized components for many other cranes we construct on order, reduce costs substantially for owners. Engineered to the job Shaw-Box Cranes, in various types and in capacities to 500 tons and more, are serving all kinds of industries.

Whatever your crane needs, we invite your inquiry. Ask for Bulletin 15025-1A.

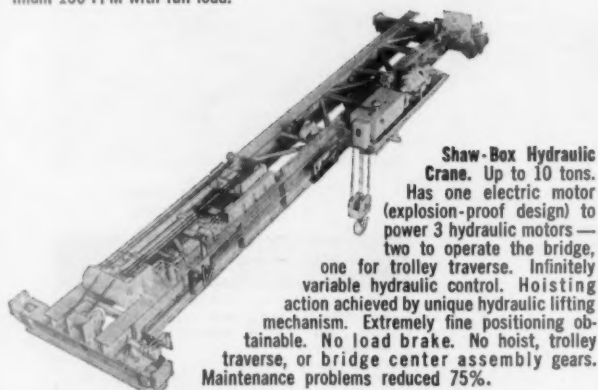
ELECTRIC TRAVELING CRANES



Type NE-SUH Load Lifter Crane. Up to 10 tons, 50-foot span. Popular in paper mills, warehouses, structural plants to serve a main bay or local area. Single girder, underhung. Operates on straight or tapered I-beam flange. Available with transfer bridge. End trucks have 6-ft. wheel base. Wheels adjustable to fit 8" to 24" I-beams. "Shaw-Matic" bridge drive provides smooth, cushioned acceleration and braking. Safer, faster spotting action. Pendant push-button control. Three speeds. Maximum 150 FPM with full load.



Type SBE Load Lifter Crane. Up to 5 tons, spans to 40 feet. Widely used in side bays in machine shops, paper mills and other plants of moderate size. Single girder, top running. Pendant push-button control. Three speeds. Maximum 150 FPM with full load.



Shaw-Box Hydraulic Crane. Up to 10 tons.

Has one electric motor (explosion-proof design) to power 3 hydraulic motors — two to operate the bridge, one for trolley traverse. Infinitely variable hydraulic control. Hoisting action achieved by unique hydraulic lifting mechanism. Extremely fine positioning obtainable. No load brake. No hoist, trolley traverse, or bridge center assembly gears. Maintenance problems reduced 75%.

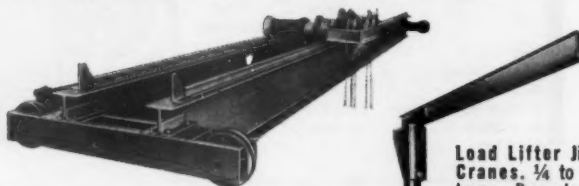
HAND-OPERATED CRANES



Type NH-SUH Load Lifter Crane. Up to 10 tons, spans to 50 feet. "Build it yourself" components to construct a single girder, underhung crane bridge at low cost right in your plant. Standard components include two assembled end trucks with 6-foot wheel base and wheels that can be adjusted to fit 8" to 24" runway beams. Also provided are shaft bracket and couplings and bearing assemblies; chain wheel and guide and 20 foot hand chain. You buy I-beam and cross shaft locally — save freight costs. Suitable hand or electric hoist available.



Type SBR Load Lifter Crane. ½ to 10 tons, spans to 40 feet. Single girder, top running. Particularly useful for accurate manual "spotting" and where travel length is moderate. Suitable hand or electric hoist available.



Type BR Load Lifter Crane. 3 to 50 tons, spans to 60 feet. Double girder, top running. Widely used in power plants, pumping stations, stone crushing plants, and warehouses. Two lifting speeds. 28 to 37½ foot lifts. Geared to save energy. Fast acting load brake. Wire rope does not overlap on drum. No tail chains to hang and foul the load.



Load Lifter Jib Cranes. ¼ to 5 tons. Revolve smoothly through full circle on ball and roller bearings. No binding. Types that bolt to floor serve up to 550 sq. ft. Others set in concrete foundation; serve up to 1500 sq. ft.

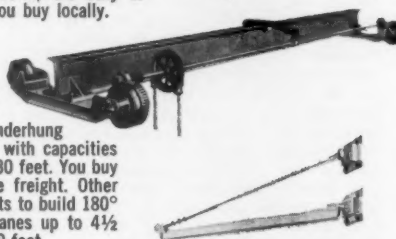


Budget Bridge Drive. Used to convert hand-operated cranes up to 10 tons to electrical operation at low cost. No drilling or machining. Push-button control. Crane travels at walking speed.



Budget Gantry "A" Frame. ½ and 2 tons. Caster equipped. For low cost mobile hoisting service anywhere in the work area. "A" frames come knocked down, are easy to assemble with I-beam you buy locally.

Budget Crane Assemblies. Low-cost "build it yourself" kits available to construct single girder underhung and top running cranes with capacities to 6 tons and spans to 30 feet. You buy I-beam locally and save freight. Other big money savers are kits to build 180° swinging bracket jib cranes up to 4½ tons with reach up to 10 feet.



59L-5



OVERHEAD LOAD HANDLING EQUIPMENT

Products of

MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario



HERE'S YOUR MOST COMPLETE BUYING GUIDE for GRANITE SURFACE PLATES AND ACCESSORIES

This new buying guide contains a selector chart listing 432 surface plates of various sizes, ledges and accuracies. It also explains the meaning of DoALL surface plate accuracy and contains a complete listing of plates made in exact accordance with government specifications. The fully illustrated guide also describes DoALL's black granite accessory gages: angle plates, straightedges, parallels, master flats, magnetic chuck platforms, deburring stones and plate stands. DoALL's resurfacing and fixturing service is also explained. Get your free copy from your local DoALL Sales-Service Store.

30-DAY TRIAL OFFER

You can test DoALL Black Granite Surface Plates in your own plant—without cost or obligation. DoALL will send you a surface plate in any standard size up to 24"x36", freight prepaid, for a 30-day free trial. Call your local DoALL Store today.

DoALL Doubles Plate Accuracy — No Price Increase

DoALL Black Granite Gaging Products go far beyond usual tolerances—beyond federal specifications. Now DoALL surface plates and accessories are produced to *Unilateral Tolerance Limits*. With this standard, DoALL delivers twice the accuracy for the same money or less! DoALL Black Granite Surface Plates are available in three accuracies—all under the *Unilateral Tolerance Limits*.

Laboratory Grade (AA).....	±.000025"
Inspection Grade (A).....	±.000050"
Shop Grade (B).....	±.000100"

Purchasers of DoALL surface plates and accessories can put their trust in DoALL's reputation as a distributor of top-quality gaging products. So-called "bargain" plates at reduced prices reflect the lack of craftsmanship and accuracy. DoALL's use of the finest black granite coupled with manufacturing skill and know-how assures users of plates and accessories made exactly to their accuracy requirements.

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EG-4



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...ask or write for your copy of...



Bunting's "Engineering Handbook on Powder Metallurgy" details manufacture and use of sintered metal bearings and parts.



CATALOG NO. 58 listing...866 sizes of Bunting Cast Bronze Standard Stock Bearings.



667 sizes of Bunting Sintered oil-filled Bronze Stock Plain, Flange and Thrust Bearings. Made to ASTM Standards.

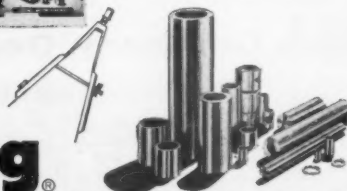


267 sizes of Bunting Cast Bronze Tubular and Solid 13" Bars.

84 sizes of Bunting Sintered oil-filled Bronze Tubular and Solid 6 1/2" Bars.

BAR CARD 40 listing... 138 sizes of Bunting Bearing Aluminum 13" Bars.

CATALOG NO. 258 listing...343 sizes of Electric Motor Bearings for all makes and sizes of electric motors from 1/50 to 100 HP.



Products

(Continued from page 118)

rashes for the industrial worker whose hands are exposed to chemicals, oils, grease, solvents, plastics and paint. Applied like any hand lotion, product protects the hands up to 12 hours and is soluble in soap and water. Used by plastic, aircraft, electronic, chemical and other industries, "Vanfaire" is available in gallon containers with 10 oz. wall dispenser, quart bottle with plunger, or 8 oz. plastic oval bottles. Vanfaire Co.

Write No. 30 on Inquiry Card—Page 32

New Line of Filter Assemblies



"Regimesh" filter assemblies are now available in standard sizes for service from 0 to 5000 psi and from -65 degrees F to +275 degrees F. Filters use ultrafine wire mesh filter elements, rigidified by a special process which bonds all cross wires to each other. Stainless filter elements are permanent, cleanable, and reusable, giving 98% removal ratings of 2, 5 and 10 micron sized particles. High dirt capacity and long service make filter assemblies of special interest for use with hydraulic fluids, lubricating oils, fuel, air, helium, etc. Aircraft Porous Media, Inc.

Write No. 31 on Inquiry Card—Page 32

PURCHASING

DELROYD

WORM GEAR SETS

New high efficiency...
higher horsepower ratings

JUST OUT

Send for this new Delroyd Worm Gear Sets Catalog #3800. It contains comprehensive information on selection of worm gears, calculation of bearing loads, and other data, much of which has never been published before.



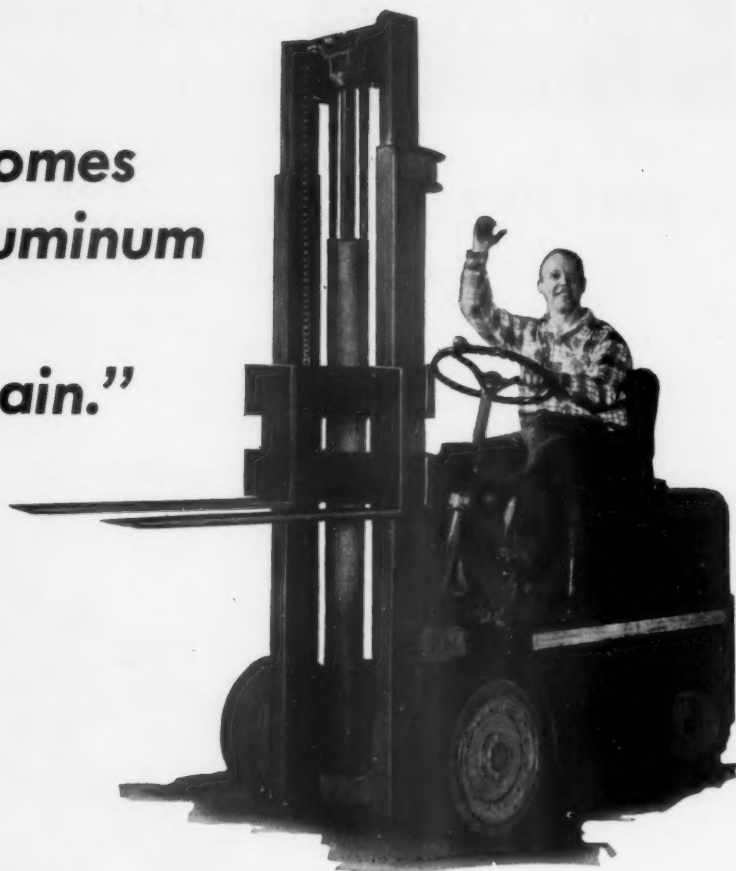
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Reliable delivery is just one advantage of QSM integrated service. In addition, production of your orders is faster; quality control is more precise; your service is more flexible and more personal; and there's much less red tape to annoy you. So next time you order aluminum sheet, coil, or tubing, think of Quaker State's integrated service.



QUAKER STATE METALS CO. • LANCASTER, PA.

DIVISION OF HOWE SOUND COMPANY



For More Information Write No. 225 on Inquiry Card—Page 32

For More Information Write No. 226 on Inquiry Card—Page 32→



You're paying for new trucks...why not own them?

Times change. So does equipment efficiency. The new *Clarklift* fork trucks pictured above, for example, have been tested and proved to be 30% more efficient than the average truck in use today. Over four years of designing, testing, and field-proving has demonstrated time and again that *Clarklift* owners get a fast return on their investment in extra production alone.

And, of course, if you have old equipment, there's the high cost of maintenance to consider. If your present trucks are frequently down for repairs, you're paying dollars not only for the parts and labor involved, but you're also paying

for lost production, supply and shipping bottle-necks, poor use of manpower. It all adds up. It means you're paying for new equipment every day . . . *but without owning it.*

A planned equipment replacement program is worth investigating. Simply write: Planned Replacement, Clark Equipment Company, Battle Creek, Michigan. We'll arrange to have a representative call to survey your operation and explain the various programs available.

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EQUIPMENT**

CLARKLIFT is a trademark of Clark Equipment Company

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—all power-built by Black & Decker!

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Speed work, cut costs with B&D accessories

Every job goes faster when you use the *right* tool . . . and the accessories built for that tool.



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EYE SHIELD



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WHEELS

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So remember . . . whether your need is hammer tools, screw-driver bits, wire wheel brushes, grinding wheels, polishing pads or any other accessory for a Black & Decker tool . . . call your local Black & Decker Distributor. He stocks 'em all.

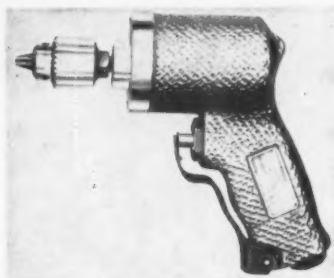
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ACCESSORIES DESIGNED FOR THE TOOL

Products

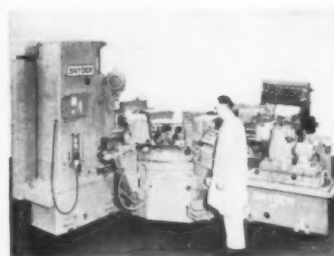
Dual Purpose Sander-Drill Has Finger-Tip Control



A new dual purpose, air-operated sander-drill with handy pistol grip features finger-tip control of speed, which ranges from 0 to 6000 RPM. Operated as sander, unit uses standard 4 in. discs or buffers and does automatic body sanding, sheet metal buffing, deburring and rust or paint scaling. Used as drill, it takes any standard drills up to 1/4 in., is recommended for light sheet metal, aluminum, lucite, etc. All aluminum sander-drill weighs just 3 lbs., measures 7 1/2 in. overall and operates on 60 to 100 psi. **Superior Pneumatic & Mfg., Inc.**

Write No. 32 on Inquiry Card—Page 32

Special 5-Station Rotary Index Machine



A new special 5-station rotary index machine mills, drills, counter-sinks spotfaces and taps the carburetor pads in three different truck engine intake manifolds, producing parts at rate of 109 pieces per hour. Design utilizes: 1) a two-position drill unit with two-position single spindle drill head, 2) interchangeable pot heads, and 3) a two-spindle tap head with one of the spindles used at a time for a part. A separate motorized unit provides

power for the 13 x 14 ft., hydraulically-operated, electrically-controlled machine, equipped with a pushbutton control panel. **Snyder Corp.**

Write No. 33 on Inquiry Card—Page 32

Light, High-Capacity Hand Chain Hoist



A new spur gear hoist combines light weight and high capacity. 22-pound hand chain hoist has high-strength aluminum alloy housing and eight-foot standard lift. Balanced gearing mechanism reduces friction, and special alloy driving pinion resists breaking, twisting and bending. Load sheave which carries suspended load is heat-treated for long wear and mounted in two enclosed heavy ball bearings. Automatic Weston-type load brake holds load securely in any position, and load chain is welded alloy steel, heat-treated for maximum wear. **Coffing Hoist Division, Duff-Norton Co.**

Write No. 34 on Inquiry Card—Page 32



"A Mr. Jordan, he's the one that sent you that automatic can opener for Xmas."

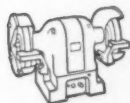
For More Information Write No. 227
on Inquiry Card—Page 32→
PURCHASING

3 ways to cut costs in grinding—



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Whether you must take the work to the tool or bring the tool to the work, Black & Decker gives you a choice of grinders to save time and money.



Powerful B&D Bench Grinders save steps—speed up jobs when strategically located about your shop. Smooth running B&D motors give more constant speed, regardless of load. Four models: 6" to 10" sizes.



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- ☐ Please arrange a demonstration of your grinder.
I am also interested in the tool(s) checked below.
☐ Please send additional literature.

Name.....Title.....

Company.....

Address.....

City.....Zone.....State.....



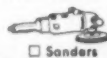
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Control of steel purity. The SANDVIK laboratories carry out more than 200,000 chemical analyses a year.



At Sandvik, the latest research and quality control techniques constantly improve and protect spring steel quality.

This is part of the reason why Sandvik steels have the special physical stamina for such critical applications as flapper valves, instrument springs, shock absorbers, surgical instruments, unbreakable watch mainsprings, piston ring segments and expanders, etc.

For information on Sandvik's wide variety of grades and sizes of specialty strip steel, send for free brochure.

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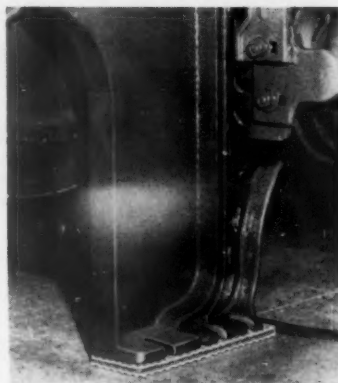
STEEL BELT CONVEYORS

HAND SAWS & TOOLS



Products

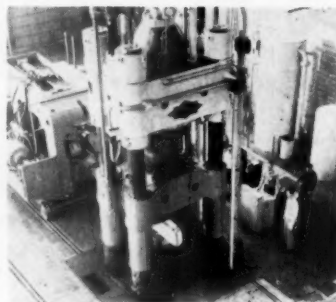
New Low-Cost Anti-Vibration Material



A new low-cost anti-vibration material is composed of tough elastomeric vinyl plastic reinforced with monofilament fiber glass. Fused in layers under heat and high pressure, vibration-absorbing pad prevents machine "creeping" and is said to eliminate 90% of destructive vibrational tremors and noise. Durable, re-usable and impervious to oil, grease, etc., pads require no bolts or adhesives. Suitable for machines from 100 lbs. to 100 tons, material is cut to machine weight. Available in standard sheets or cut to requirements. **Lowell Industries, Inc.**

Write No. 35 on Inquiry Card—Page 32

Press Minimizes Effects of Off-Center Loading



A 2000-ton water hydraulic forging press minimizes the effects of deflection due to off-center loading by use of heavy-duty tie rods and specially designed tie rod nuts. Press handles extremely tough super alloy billets
(Please turn to page 133)

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Wherever you need "slower than motor speeds" you can get positive speed reduction with plenty of power by using Wagner Gearmotors.

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Wagner Gearmotors offer a wide variety of sizes in single, double, triple or quadruple reductions, horizontal or vertical foot or flange mountings—speeds from $7\frac{1}{2}$ to 780 RPM. Write for Bulletin MU-227.

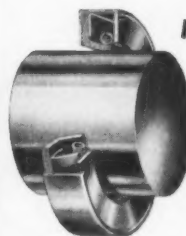
Whether you specify or apply power transmission equipment, your nearby Wagner Sales Engineer will be glad to help you select the right drive for your applications.

Heat treated high capacity helical gears

Gears are hardened after cutting, for maximum hardness and accuracy, to give extra capacity and longer wear life.



Positive Oil Seals



Improved lip type seals are used on horizontal shafts. On vertical output shafts, double mechanical seal with slinger and drain-off gives positive protection against leakage.

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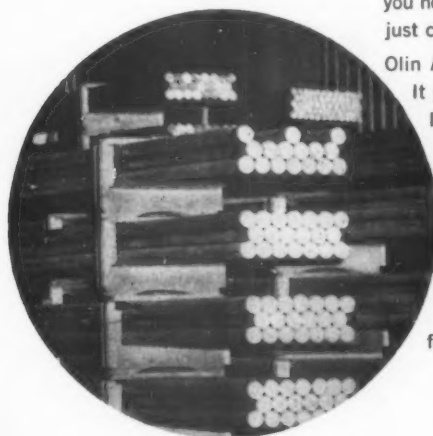
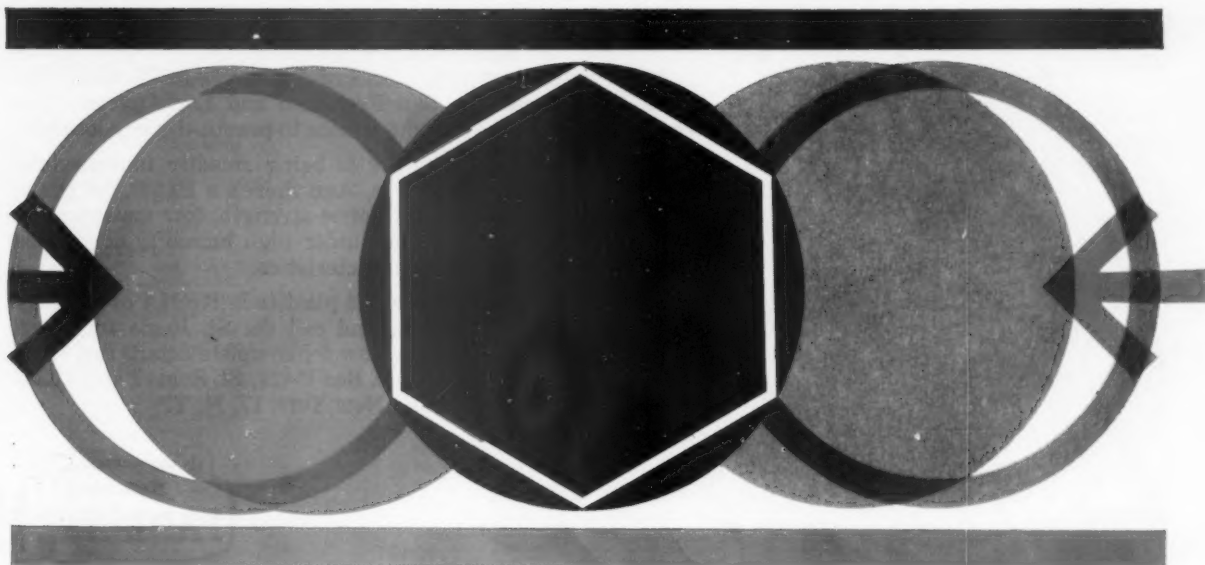
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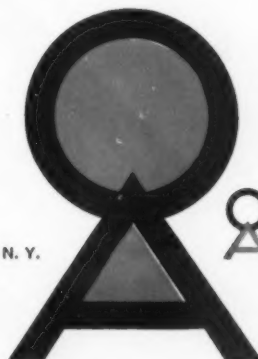
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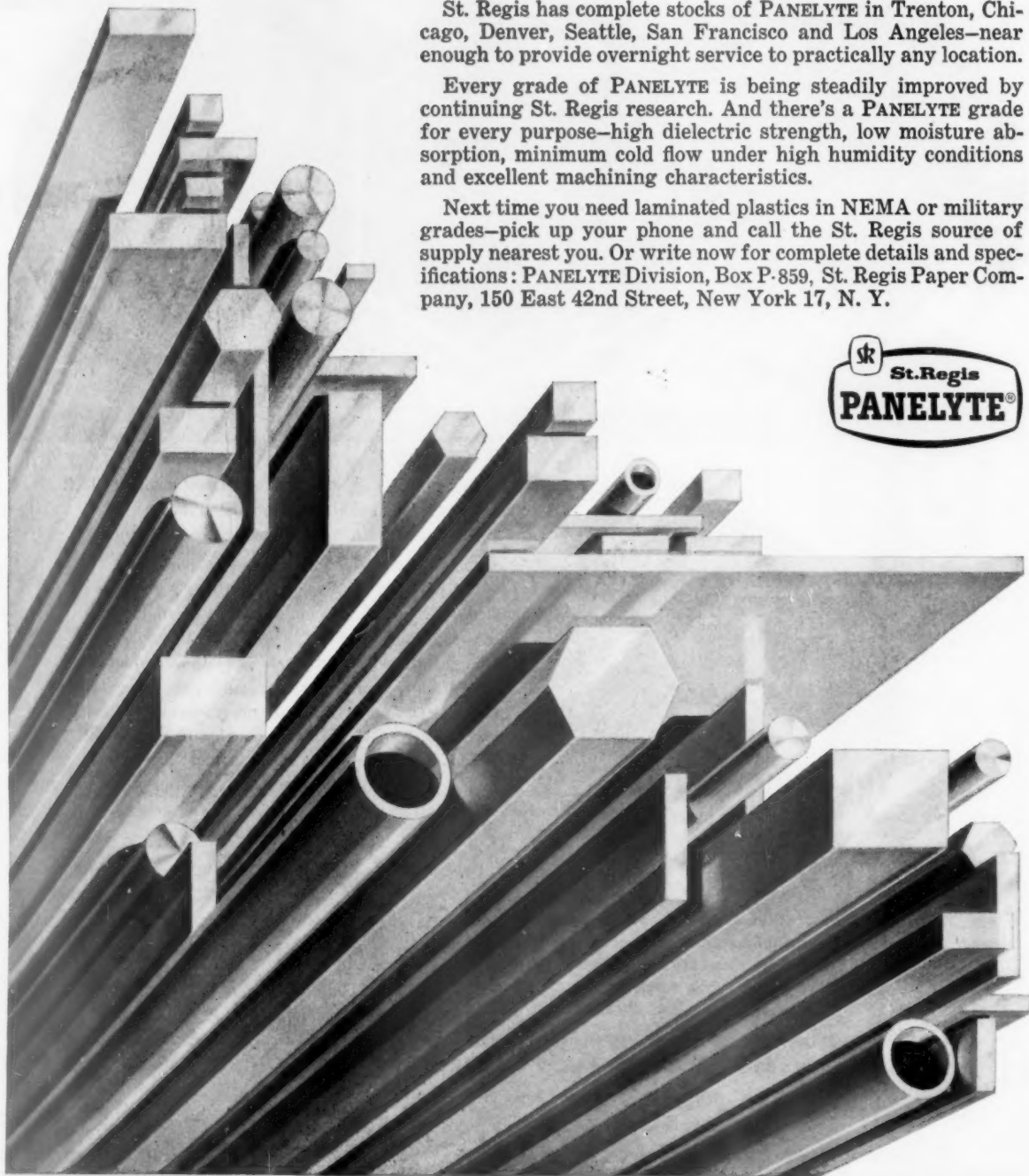
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Los Angeles, California
Electrical Specialty Company
Los Angeles, California
Cadillac Plastics
San Francisco, California
Electrical Specialty Company
San Francisco, California

COLORADO

Electrical Specialty Company
Denver, Colorado
* Regal Plastic Supply
Englewood, Colorado

CONNECTICUT

Modern Plastic & Glass Company
Bridgeport, Connecticut
* New England Non Metals Co., Inc.
Milford, Connecticut
Industrial Safety Supply
W. Hartford, Connecticut

DELAWARE

Brandywine Fibre Company
Wilmington, Delaware
Kaufman Glass Company
Wilmington, Delaware

FLORIDA

Commercial Plastics
Miami, Florida

GEORGIA

AAA Brands Plastic Supply Co.
Atlanta, Georgia

ILLINOIS

Cadillac Plastics
Chicago, Illinois
Colonial Kolonite
Chicago, Illinois
Insulating Manufacturing Corp.
Chicago, Illinois

INDIANA

* Hyaline Corporation
Indianapolis, Indiana

KANSAS

The Henry Company
Wichita, Kansas

LOUISIANA

Drake-Thompson and Company
New Orleans, Louisiana

MARYLAND

Gilbert Plastics and Supply Company
Baltimore, Maryland

MASSACHUSETTS

Plastic Supply Co. (Hub Stamping)
Boston, Massachusetts
* Insulation Products Company
Chicopee, Massachusetts
H&P Spool & Bobbin Company
Lawrence, Massachusetts
* Laminated Sheet Products
Norwood, Massachusetts

MICHIGAN

Cadillac Plastics
Detroit, Michigan

MINNESOTA

Arrowhead Plastics
Minneapolis, Minnesota
Service Tool & Engineering
Minneapolis, Minnesota

MISSOURI

Cadillac Plastics
Kansas City, Missouri
Plastic Sales
Kansas City, Missouri
Cadillac Plastics
St. Louis, Missouri

NEW JERSEY

* Insulating Fabricators, Inc.
East Rutherford, New Jersey
Allied Plastics Supply Corporation
Elizabeth, New Jersey
* Insulating Specialties, Incorporated
Hillside, New Jersey
Kennedy Lumber Company
Trenton, New Jersey
* Rummel Fibre Company
Union, New Jersey

NEW MEXICO

* Jay-Greer, Incorporated
Albuquerque, New Mexico

NEW YORK

* T. J. Long, Incorporated
Carle Place, New York
* Aircraft Specialties Company, Inc.
Hicksville, New York
Allied Plastics Supply Corporation
New York City, New York
Commercial Plastics
New York City, New York
* Comco Plastics
Ozone Park, New York
The Plastic Center
Rochester, New York
* The Frank Products Corporation
Westbury, New York

NORTH CAROLINA

* Engineered Plastics, Incorporated
Gibsonville, North Carolina

OHIO

Cadillac Plastics
Cincinnati, Ohio
Cadillac Plastics
Cleveland, Ohio
Dayton Plastics, Incorporated
Columbus, Ohio
Dayton Plastics, Incorporated
Dayton, Ohio

OKLAHOMA

Denton's Glass & Plastics
Oklahoma City, Oklahoma

OREGON

Electrical Specialty Company
Portland, Oregon

PENNSYLVANIA

Commercial Plastics
Philadelphia, Pennsylvania
* Herschel Engineering & Supply Co.
Philadelphia, Pennsylvania
Commercial Plastics
Pittsburgh, Pennsylvania

TEXAS

A&A Supply Company
Dallas, Texas
Cadillac Plastics
Dallas, Texas
Cadillac Plastics
Houston, Texas

WASHINGTON

Electrical Specialty Company
Seattle, Washington

WISCONSIN

Rahrs Engineering
Manitowoc, Wisconsin
Cadillac Plastics
Milwaukee, Wisconsin

Products

(Continued from page 128)

in a weight range from 1500 to 10,000 lbs. and is capable of 120 half-inch planishing strokes or 35 cogging strokes per minute. Two 600 HP seven-plunger pumps maintain pressure in hydraulic accumulator system at 4500 psi. Press is operated from a main control console by one operator who has finger-tip control over planishing. Cogging is done by manual operating lever. **Birdsboro Steel Foundry and Machine Co.**

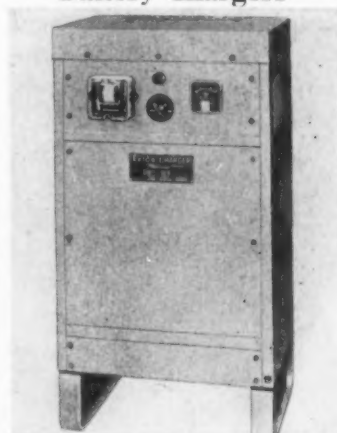
Write No. 36 on Inquiry Card—Page 32

Microminiature Parts in Synthetic Rubber

Microminiature synthetic rubber parts are being mass produced by a new company. Rubber bushings as small as .050 in. OD by .050 in. high with a center hole of .012 in. are currently in production. New series of compounds involving a wide range of elastomeric materials are being used for these specialized applications, with particular emphasis on their electrical qualities, chemical resistance and high temperature service. All materials are carbon and sulphur free. **Industrial Electronic Rubber Co.**

Write No. 37 on Inquiry Card—Page 32

New Rectifier-Type Battery Chargers



A new group of completely automatic silicon rectifier-type battery chargers is now available from **Exide Electric Truck Rectifier**. (Please turn to page 136)

*Distributor-Fabricators who can give special
attention to your fabrication needs.



*The shrill sound of a horn
echoes in every shaft
to guard this mine's air supply against...*

CUTOFF!

This is a Pennsylvania coal mine.

Deep down in the earth, hundreds of men are working at the raw sides of jagged black tunnels.

At the surface, three giant fans—each remotely situated in the surrounding countryside—send fresh air sprawling through the many miles of entryway.

The link between man and fan is 4½ miles of Rome control cable!

Engineers at this mine* selected Rome control cable for the nerves of a meticulously engineered control system that guards the mine's vital air supply. A winking light in the control room means everything is running smoothly. *But...*

A shrieking horn means trouble! Before gases can accumulate in the mine—jeopardizing the lives of hundreds—repair crews get the signal and start patching up the failing fan.

Cable for a control system such as this must be the ultimate in reliability. "We've had experience with Rome's borehole cable

and other types of Rome cable," says the chief outside electrician, "so I recommended Rome's control cable for this important job."

It went up very quickly—a crew of seven strung the first 16,000 feet over rugged, wooded and hilly terrain in only 14 days. That's *half* the time such an installation normally takes. The reason? Rome supplied a factory-assembled self-supporting-type cable to save the time and expense of on-the-job assembly.

You depend on cable, too. Just as this coal mine relies on cable to breathe, your plant relies on cable for production—to drive machines and other plant equipment. Like the mine, you can't afford to take chances on power failures.

Rome Cable manufactures various types of thermosetting and thermoplastic control cables to meet specific electrical, environmental, installation and economic requirements. Call your nearest Rome Cable salesman today for help in selecting the precise cable you need.

*Name of mine furnished on request.



ROME CABLE
C O R P O R A T I O N



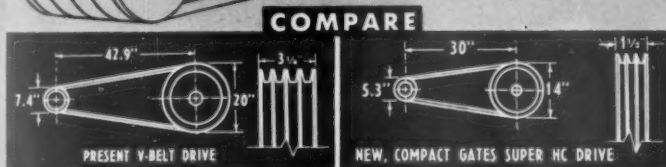
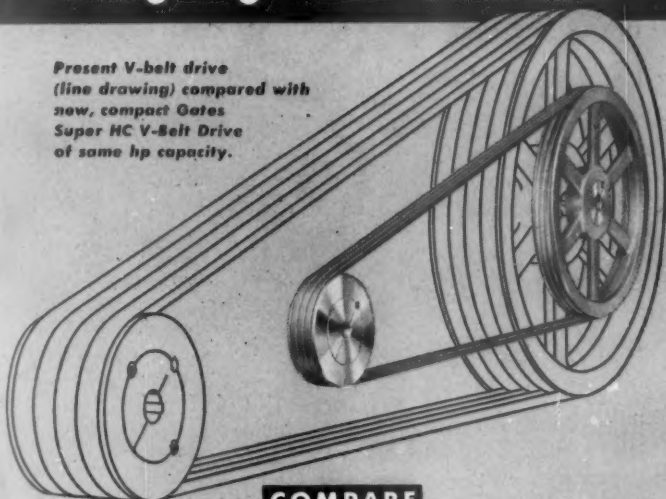
AUGUST 17, 1959

For More Information Write No. 233 on Inquiry Card—Page 32

135

Designing NEW DRIVES?

Present V-belt drive
(line drawing) compared with
new, compact Gates
Super HC V-Belt Drive
of same hp capacity.



Save up to 20%

with new high capacity V-belt drive

When you change the whole drive — both V-belts and sheaves — remember: The cost of a Gates Super HC V-Belt Drive is as much as 20% less than the cost of present V-belt drives of the same horsepower capacity.

A development of Specialized Research in the world's largest V-belt laboratories at Gates, the new Super HC V-Belt makes possible the most compact, lightest-weight, lowest-cost multiple V-belt drive you can put on any machine!

Cuts drive space as much as 50%

With Gates new Super HC V-Belt, sheave diameters and widths can be reduced 30% to 50%, center distances 20% and more. Bearing load is lightened and total space occupied by the drive may be cut as much as 50%.

"The Modern Way to Design Multiple V-Belt Drives" is an informative handbook on the Super HC Drive, available from your nearby Gates Distributor listed in the Yellow Pages of your phone book.



The Gates Rubber Co., Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ont.
World's Largest Maker of V-Belts

TPA 439

Gates SUPER HC V-BELT Drives

For More Information Write No. 234 on Inquiry Card—Page 32

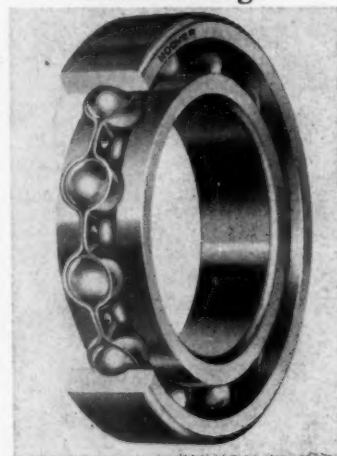
Products

(Continued from page 133)

fier chargers (ETR's) have tapering-current characteristics comparable to motor generator equipment. New line comes in 4 different physical sizes with a choice of 30 electrical ratings for use with 6, 9, 12, 15, 16, and 18 cell batteries. Ratings range from 250 to 1000 ampere-hours. Addition of new ETR's raises firm's total of electrical ratings to 283, permitting closer matching to a wide variety of battery requirements.

Write No. 38 on Inquiry Card—Page 32

New Extra Light Ball Bearings



Extra light ball bearings in a new series are recommended for applications requiring maximum shaft diameters and minimum housing areas, since dimensions are substantially smaller than standard light, medium or heavy bearings of comparable shaft sizes. Styles offered include open, single or double shield, or single or double contact seal, and combination contact seal and shield, all with or without snap ring. Shaft sizes on Hoover Ball and Bearing Company series 3L00 extra light bearings range from 17 to 65 millimeters.

Write No. 39 on Inquiry Card—Page 32

**FOR READER SERVICE
CARD TURN TO
PAGE 32**

Custom-Made Industrial Gloves



Custom-made industrial gloves can now be obtained for workers whose hands are unusual size or shape. To ensure freedom of movement and maximum sensitivity in such cases, special molds are made from outline drawings or, if available, plaster of paris casts. Nominal fee is charged for special mold, which is then kept on file for re-orders, but custom-made gloves are supplied at regular cost. **Pioneer Rubber Co.**

Write No. 40 on Inquiry Card—Page 32

Fin and Fan Cooled Speed Reducers



A new series in "Hi-Line" fin and fan cooled speed reducers is said to provide up to 80% greater capacity due to specially designed cooling fins and powered cooling fan. Series is of the right angle, vertical style, employing a worm and gear reduction. Space-saving models are available with a low base, high base, or no base, and also in two types of N.E.M.A. "C"-flange motor mounts. Sizes range from 1.33 in. to 5.25 in. center distance with a wide variety of standard reductions ranging from 1:1 through 60:1. **Ohio Gear Co.**

Write No. 41 on Inquiry Card—Page 32

AUGUST 17, 1959

Need REPLACEMENT V-BELTS?



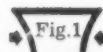
Improved Gates Vulco Rope gives you 2 important advantages

1. 40% higher hp rating at no increase in price: This important cost-saving advance is the result of Specialized Research in the world's largest belt-testing laboratories at Gates. As replacements on standard drives these V-belts with 40% more load-carrying ability give longer service life...reduce down-time, cut belt replacement costs.

2. Concave Sides (U. S. Pat. 1813698):

The sides of Gates Belts are concave (Fig. 1). When the belt is bent around the sheave, the concave sides fill out—become straight—for full, uniform contact with the sides of the sheave groove (Fig. 2). Uniform contact insures maximum pulling power...even distribution of wear...longer life.

Available in all sizes from your nearby Gates V-Belt Distributor listed in the Yellow Pages of your phone book.



When designing new drives
use Gates new Super HC V-Belts and Sheaves.
See opposite page.

The Gates Rubber Co., Denver, Colorado
Gates Rubber of Canada Ltd., Brantford, Ont.

World's Largest Maker of V-Belts

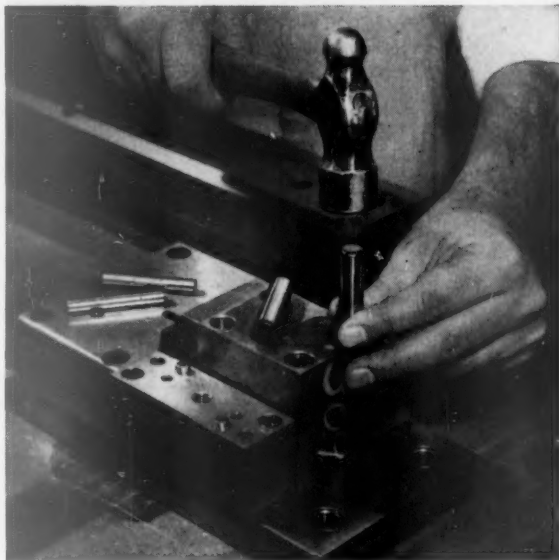


TPA 432

Gates Hi-Power V-Belts

For More Information Write No. 235 on Inquiry Card—Page 32

Precision of UNBRAKO Dowel Pins cuts cost in many applications



Precise tolerances of ± 0.0001 inch and consistently uniform physical characteristics, maintained by automatic gaging, and atmosphere-controlled heat treatment, make UNBRAKO Dowel Pins reliable cost-cutters in many different applications.

These precision products are so accurate that many plants use them as plug gages in numerous production operations. Others use them as guide pins, stops, wrist pins, hinges and shafts; as position locators on indexing machines; as feeler gages in assembly work; as valves and valve plungers on hydraulic equipment; as fasteners for laminated sections and machine parts; as roller bearings in casters and truck wheels.

Your authorized SPS distributor stocks UNBRAKO Dowel Pins in two types: Blue Label Pins .0002 inch oversize to meet nominal press fit requirements; and Red Label Pins .001 inch oversize for use as repair pins.

See your nearest distributor for complete details. Or write SPS—manufacturer of precision threaded industrial fasteners and allied products in many metals, including titanium.

◀ Typical of the many applications of UNBRAKO Dowel Pins is this die. Here the pins are used to position laminated sections.

Nominal Diam. \varnothing	STANDARD (.0002 inch over diameter listed)		OVERSIZE (.001 inch over diameter listed)		Point Diam.	Top Radius	Bottom Radius
	Max.	Min.	Max.	Min.			
1/16	0.0646	0.0642	0.0636	0.0634	0.0054	0.015	0.005
1/8	0.1253	0.1251	0.1261	0.1259	0.116	3/64	1/64
3/16	0.1878	0.1876	0.1886	0.1884	0.178	3/64	1/64
1/4	0.2503	0.2501	0.2511	0.2509	0.237	1/16	1/64
5/16	0.3128	0.3126	0.3136	0.3134	0.298	1/16	1/64
3/8	0.3753	0.3751	0.3761	0.3759	0.359	3/64	1/64
7/16	0.4378	0.4376	0.4386	0.4384	0.417	1/2	1/32
1/2	0.5003	0.5001	0.5011	0.5009	0.480	3/64	1/32
5/8	0.6253	0.6251	0.6261	0.6259	0.605	1/8	1/32
3/4	0.7503	0.7501	0.7511	0.7509	0.725	1/8	1/32
7/8	0.8753	0.8751	0.8761	0.8759	0.850	1/8	1/32
1	1.0003	1.0001	1.0011	1.0009	0.975	1/8	1/32

OTHER CHARACTERISTICS OF UNBRAKO DOWEL PINS

- Surface Hardness: Rockwell C Scale: 60-62
- Surface Finish: 6 microinch maximum
- Core Hardness: Rockwell C Scale: 50-54
- Case Depth: .020 inch minimum
- Average Shear Strength: 150,000 psi
- Diameter Tolerance: ± 0.0001 inch

INDUSTRIAL FASTENER Division

SPS

JENKINTOWN 31, PENNSYLVANIA

For More Information Write No. 250 on Inquiry Card—Page 32

PURCHASING

ALL NEW . . . AND

Shock
Resistant!



Hoover pillow blocks with ductile cast housings

Hoover introduces a new, economical pillow block ball bearing unit with cast housing of ductile material that absorbs shock and vibration, assuring long bearing life. It is designed to carry light loads at normal speeds.

The unit contains a pre-lubricated bearing featuring ultra-smooth *Hoover Honed* raceways and a perfectly matched set of *Micro-Velvet* balls, a guarantee of unexcelled quality. Known as the E D series, these new pillow block bearings are available in shaft sizes from $\frac{1}{2}$ " to $1\frac{3}{16}$ ".

Hoover also offers a cast iron pillow block bearing for light to medium load conditions, plus a wide range of flange and machine units.

Hoover
BALL AND BEARING COMPANY

5400 South State Road, Ann Arbor, Michigan

Sales Offices and Warehouses: 2020 South Figueroa, Los Angeles 7, California
290 Lodi Street, Hackensack, New Jersey

Hoover Honed and *Micro-Velvet* are Hoover trademarks.



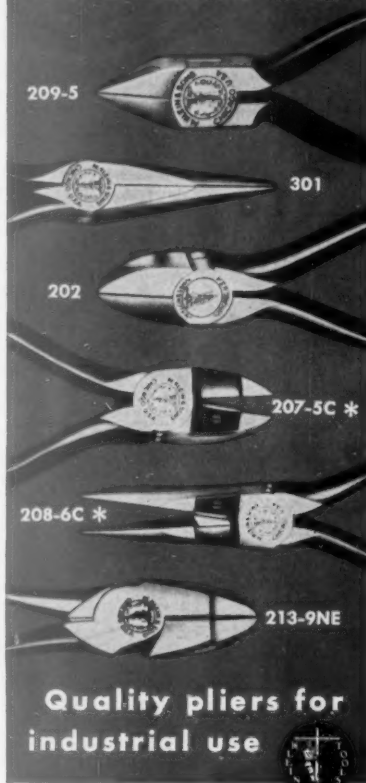
NEW BULLETIN 106
DESCRIBES COMPLETE LINE
OF NEW HOOVER PILLOW
BLOCK BALL BEARINGS

Please return coupon for your copy

Hoover Ball and Bearing Company P-3
5400 South State Road, Ann Arbor, Michigan
Please send new Bulletin 106, which describes Hoover
pillow block ball bearings.

Name _____
Title _____
Company _____
Address _____
City _____ Zone _____ State _____

KLEINS



Quality pliers for industrial use

*Pat. applied for

On production lines . . . in the hands of electricians . . . wherever pliers are used, you are assured of the best when they carry the Klein trade-mark—standard of quality "since 1857."

The Klein line is complete—with the right size and style for every job, each designed to do that job better and to give lasting service.

No matter what your needs, be sure to check your supplier and make sure the pliers you buy carry the Klein trade-mark.



Klein Pocket Tool Guide
If you do not have your free copy of the Klein Pocket Tool Guide, write for it today.

ASK YOUR SUPPLIER

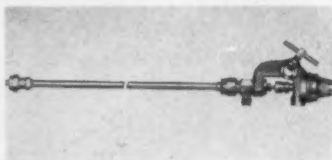
Foreign Distributor:
International Standard
Electric Corp.
New York



For More Information Write No. 238
on Inquiry Card—Page 32

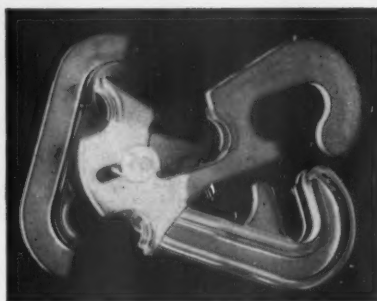
Products

Automatic Spray Gun With Extensions



A new spray gun with extensions for hydraulic spray coating brings the nozzle closer to the work where space is too limited for mounting complete nozzle assembly. Extensions are available in 8, 18, and 24 in. lengths, plus special lengths where needed, and a wide choice of interchangeable orifice tips may be had. Liquids are sprayed at recommended pressures up to 125 psi. Shut-off valve mechanism is air-operated at 70 to 100 lbs. pressure and provides automatic on-and-off spray nozzle operation at any required frequency. **Spraying Systems Co., 3201 Randolph St., Bellwood, Illinois.**

Write No. 42 on Inquiry Card—Page 32



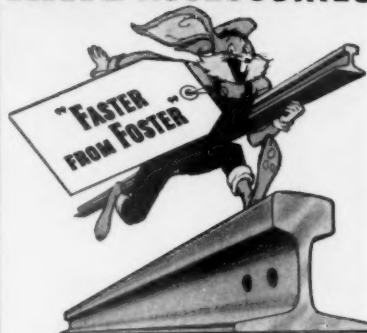
Purchase for Profit!

Specify Chicago Molded

This brand new molded plastic suspension clamp simplifies the difficult and costly job of running power cables thru heavily timbered areas . . . saves up to 60% the cost of conventional systems. Injection molded by CMPC in 4 integrated acrylic parts, the new clamp reduces power failures due to external interference . . . cuts line maintenance costs. By any measure of value analysis, this is *purchasing for profit!* When you have part-cost problems . . . call, *specify:*

**CHICAGO MOLDED
PRODUCTS CORPORATION**
1028 North Kelmar, Chicago 51, Ill.
For More Information Write No. 240
on Inquiry Card—Page 32

RAIL and TRACK ACCESSORIES

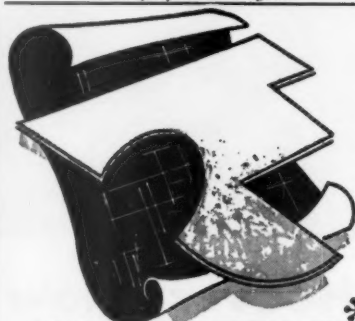


Get the advantage of "single-source" buying for all your needs in industrial track and crane runways. Prompt deliveries assured from the nation's largest warehouse stocks of rail, switch material, tools and construction products. Foster is national distributor to industry for major manufacturers, such as Weir-Kilby, Woodings-Verona, Nolan, Western Industries and others.

Refer to our catalogs in Sweet's File



For More Information Write No. 239
on Inquiry Card—Page 32



We fit FELT*

Our experts in the Industrial Division

will cut FELT to fit your specifications!

*Available in Wool Felts or new Synthetic Fiber Felts — all weights, widths, colors, etc. — and made to S.A.E. and Federal Gov't. Specifications . . .

Large diversified inventory insures prompt delivery!

Send for free folder of samples and applications of Industrial Felt. Write for Booklet H-3.



CONTINENTAL FELT COMPANY—1925
22-26 WEST 15th STREET NEW YORK 11, N.Y.

For More Information Write No. 241
on Inquiry Card—Page 32

Hydraulic Cylinder Manufacturer Specifies



Loading a minimum quantity of Ostuco tubing at the Shelby mill — in this instance only 150 feet.

“When you make hydraulic cylinders in 11 bore sizes... dozens of different pressure ratings... a variety of wall thicknesses and analyses — you’ve got a man-size tubing inventory problem.

“That’s why we switched to Ostuco tubing made to our *exact specifications*. We like its availability in truly *small minimum quantities*. And with its consistently close tolerances, shipment after shipment,

Ostuco tubing has *cut our machining time over 50 percent*...”

This is an actual case history of a manufacturer with a severe inventory problem. He required special tubing grades in minimum quantities. If you’re faced with a similar situation, it’s time you contacted your Ohio Seamless representative, listed in the Yellow Pages, or the mill at *Shelby, Ohio* — *Birthplace of the Seamless Steel Tube Industry in America*.

AA-5843

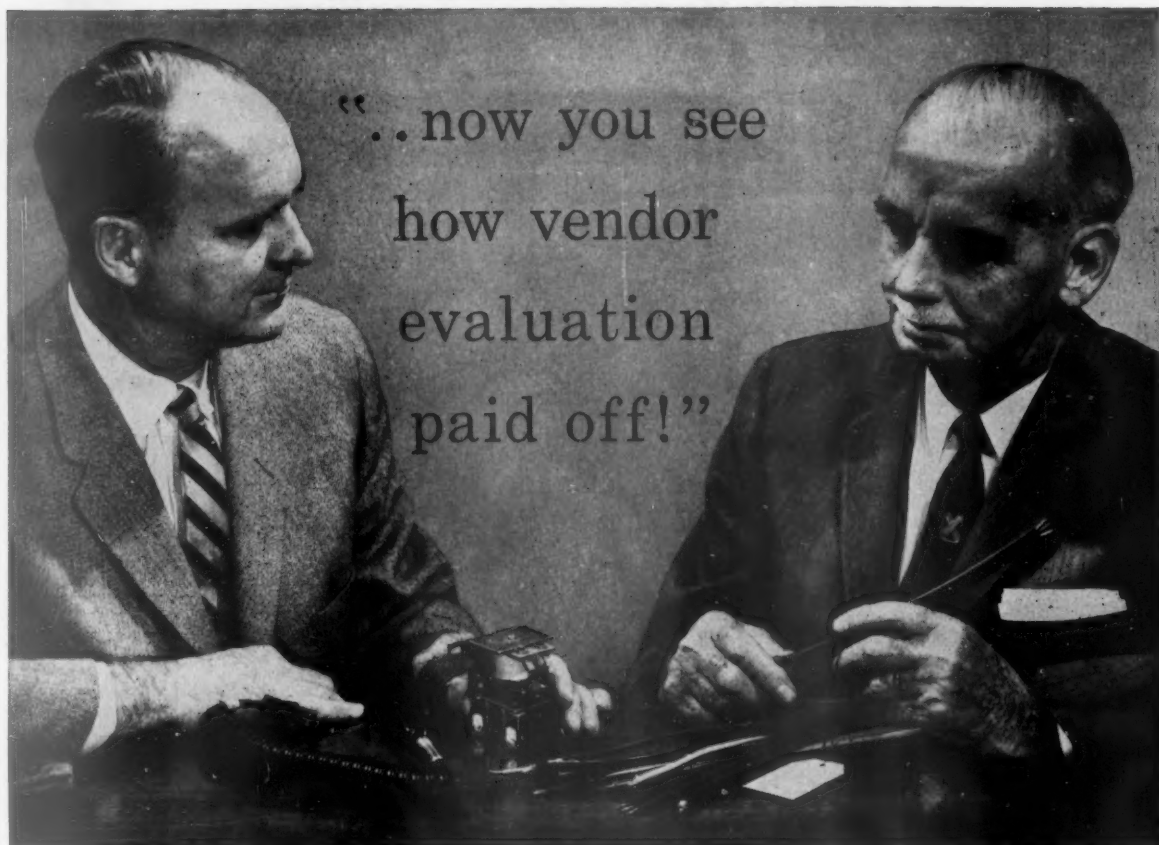


OHIO SEAMLESS TUBE DIVISION

of Copperweld Steel Company • SHELBY, OHIO

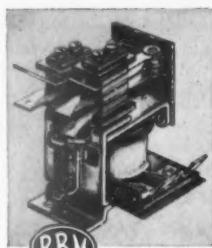
Seamless and Electric Resistance Welded Steel Tubing • Fabricating and Forging

SALES OFFICES: Birmingham, Charlotte, Chicago (Oak Park), Cleveland, Dayton, Denver, Detroit (Huntington Woods), Houston, Los Angeles (Lynwood), Miami, Moline, New Orleans (Chalmette), New York, North Kansas City, Philadelphia (Wynnewood), Pittsburgh, Rochester, St. Louis, St. Paul, Salt Lake City, Seattle, Tulsa, Wichita. CANADA: Railway & Power Eng. Corp., Ltd. EXPORT: Copperweld Steel International Company, 225 Broadway, New York 7, New York



“...now you see
how vendor
evaluation
paid off!”

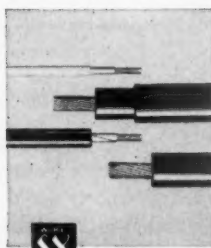
... Controls, Cord Sets, Wire and Cable All from Essex Single Source



RBM Relays

Low cost, high quality relays: general purpose, open and hermetically sealed, motor starting, AC industrial contactors and starters for Communications, Electronic and Appliance Industries.

R-B-M Controls Div., Logansport, Ind.



SX Wire and Cable

A complete line of appliance wiring material, radio, television and electronic hook-up wire, 200°C high temperature Sil-X wire, automotive wires and cables, and flexible cords.

Wire and Cable Div., Fort Wayne, Ind.



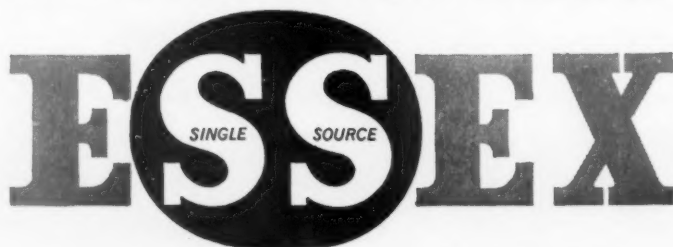
Coiled Cords, Cord Sets

Plastic and rubber power supply cords. Terminations of all types (molded plastic and rubber). Complete line of Coiled Cords in HPN, Type SP and Types SV, SJ; covering full appliance range.

Cords Limited Div., DeKalb, Illinois

Across the board—Essex Single Source Service pays off! It's a sensible approach to reduction of finished product costs. Close quality control is reflected in absence of reject problems and tight production schedules are maintained as a result of dependable Essex delivery of integrated electrical components.

Learn how Essex Single Source Service can work to your advantage. Call your local Essex application specialist today for details on this practical component purchasing plan!



ESSEX WIRE CORPORATION
Fort Wayne, Indiana



Here's a Tip for Complete Washroom Service

Put your money on Numatic and Tymatic!

It's one solid bet without any risk. Why? Because these washroom twins go together like aces back to back. With Numatic roll towels you get big capacity at low cost (plus money-saving crank dispensing!) Tymatic tissue's spare roll means your washrooms need never run out of toilet tissue.

So don't gamble! Call your local Crown Zellerbach paper supplier for the inside story. Or write us at 485 Lexington Avenue, New York.

*Paper Products
for all America!*



CROWN ZELLERBACH EASTERN DIVISION

In Canada address product inquiries to Crown Zellerbach Canada Limited, Vancouver, B.C.

NEW IDEAS IN PACKAGED POWER

for lab, production test,
test maintenance, or as a
component or subsystem
in your own products



high-precision
vapor fractometer
gets Sorensen
transistorized
supply

provides
"better accuracy"
says Perkin-Elmer

Detector for
Perkin-Elmer
Model 154-C Vapor
Fractometer (above)
gets highly stable
voltage from tiny
but precise Sorensen
dc supply (below).
Dimensions are only
3-9/16 x 3-1/16 x 5 in.

Perkin-Elmer Corporation, Norwalk, Connecticut, selected a modified Sorensen miniature transistorized supply to build into the hot-wire detector unit for their new precision Model 154-C Vapor Fractometer.

They report they're pleased with the speed with which Sorensen modified their standard Model QM miniature voltage-regulated dc supply to fit their specialized requirements and they praised Sorensen's quick deliveries. But here's the statement we, at Sorensen, liked best:

The QM "... appears to afford even better regulation than Sorensen's specifications show (better than $\pm 0.05\%$ variation in output voltage for a 10% change in line voltage)." Need we say more?

Sorensen makes the widest line of transistorized power supply equipment on the market today—plus a complete line of electronic and magnetic-amplifier regulators for ac and dc, inverters, converters, and frequency changers, plus a complete line of extremely high-voltage equipment. Write for catalogs. And if you have a special problem or tough specifications to meet, ask the advice of your nearest Sorensen representative—he'll have the answer.

8.48



SORENSEN & COMPANY, INC.

Richards Avenue, South Norwalk, Connecticut

**WIDEST LINE OF CONTROLLED-POWER
EQUIPMENT FOR RESEARCH AND INDUSTRY**

IN EUROPE, contact Sorensen-Ardag, Zurich, Switzerland. IN WESTERN CANADA, ARVA.
IN EASTERN CANADA, Bayly Engineering, Ltd. IN MEXICO, Electro Labs, S. A., Mexico City.

For More Information Write No. 244 on Inquiry Card—Page 32

Products

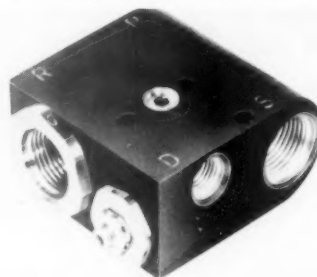
New Non-Slip Plastic-Coated Gloves



American Optical's Safety Products Division is producing a new series of plastic-coated gloves which feature non-slip wet and dry grip. Recommended for safe handling of objects made slippery by oil or grease, "Plasti-fab" 2-15 gloves come in six models, knitwrist, band top or gauntlet style, and in various lengths. All have 8 oz. Jersey lining and are flexible, abrasion-resistant, long-wearing and completely liquid-proof.

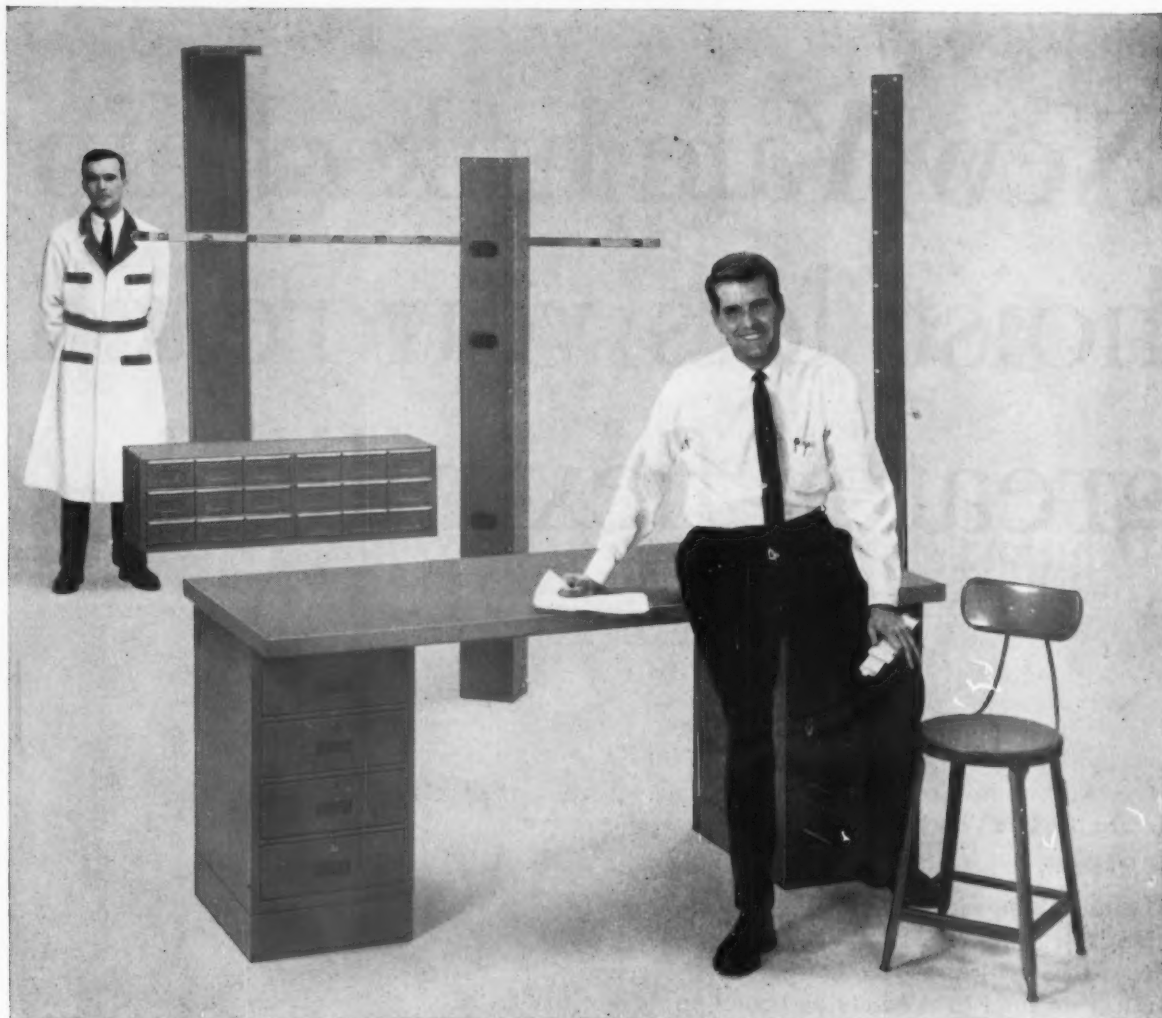
Write No. 43 on Inquiry Card—Page 32

Pressure Regulators for Hydraulic Systems



Hydraulic pressure regulators in a new series provide automatic and precise regulation, diverting the flow of continuously operating pump to the reservoir during "no work" period and thus reducing power consumption, heat and wear and increasing pump life, response, and system efficiency. Operating pressure range is 0 to 3500 psi; proof pressure is 5000 psi, and burst pressure is 9000 psi.

(Please turn to page 148)



The work bench with a thousand ideas

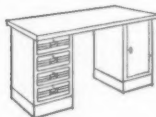
Let's forget how people got along before the Hollowell Unit Work Bench arrived — for here is a bench loaded with personalized ideas for you.

Drawers if you want them, doors if you want them, adjustable shelves, top shelves, Wiremold or electrical

panel sections, storage wall units—choice of tops.

You can butt them end to end, join tops midway on cabinet, arrange them back to back, or rearrange them later with ease. It adds up to custom quality and custom adaptability at standard bench prices.

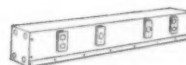
CUSTOM-TAILOR HALLOWELL UNIT WORK BENCHES TO YOUR SPECIFIC NEEDS



Doors or drawers—either or both



Backboard or Top Shelf



Electrical Panels

... or combinations of these and other accessories available from stock.

See your authorized Hollowell Distributor or write direct

COLUMBIA-HALLOWELL Division

SPS

JENKINTOWN 31, PA. • SPS WESTERN, SANTA ANA, CAL.

For More Information Write No. 245 on Inquiry Card—Page 32

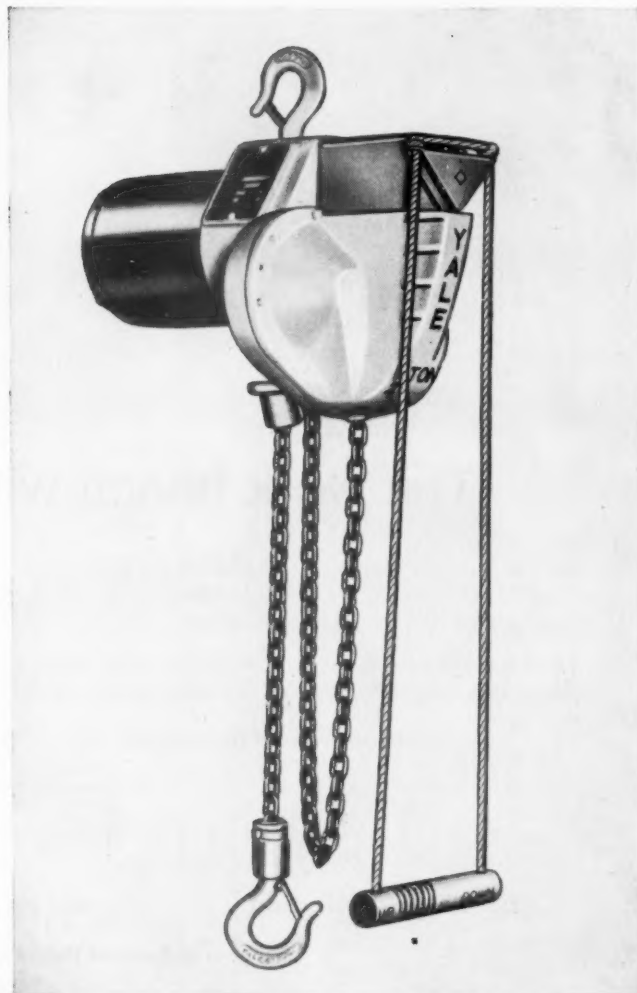
New Yale link chain hoist lets you reach greater flexibility!

Flexibility lets you perform wider applications with the new Yale Link Chain Midget King. Link chain flexes in any plane—allows you to reach out for load instead of having to be right over it.

The new Yale Link Chain Midget King gives you *two-brake* safety. Motor brake for spotting, inching. Weston-type, self-actuating load brake acts as lowering speed governor—sets automatically in event of motor brake failure.

Yale's "quick make and quick break" switch, plus enclosed, protected motor brake gives maximum positioning and spotting accuracy. No slippage between drum and shoe, either—because no grit or grime can reach completely enclosed motor and brake.

Other features include—one-hand grip control—safety limit stops—fracture-resistant hooks—lifetime alloy gears—precision ball bearings. Capacities: $\frac{1}{8}$ to 2 tons.

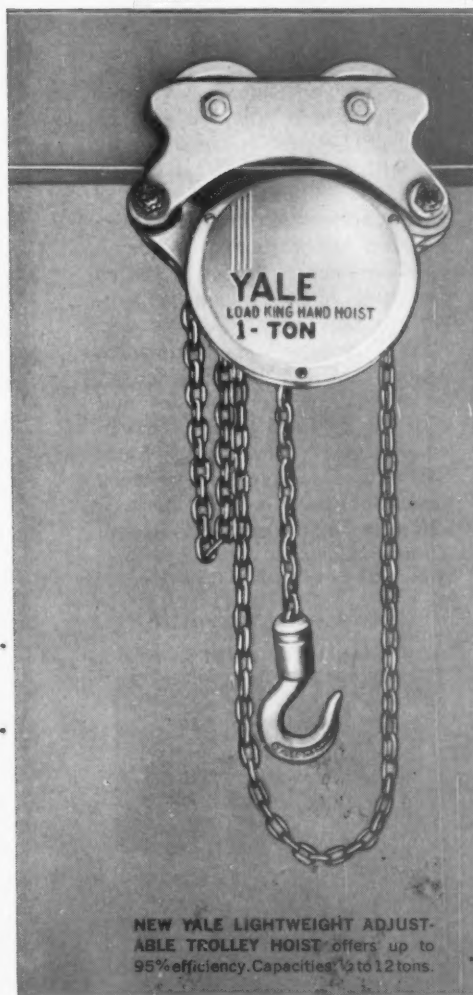


FOR FULL INFORMATION CONTACT YOUR YALE DISTRIBUTOR (LISTED IN THE YELLOW PAGES) OR WRITE

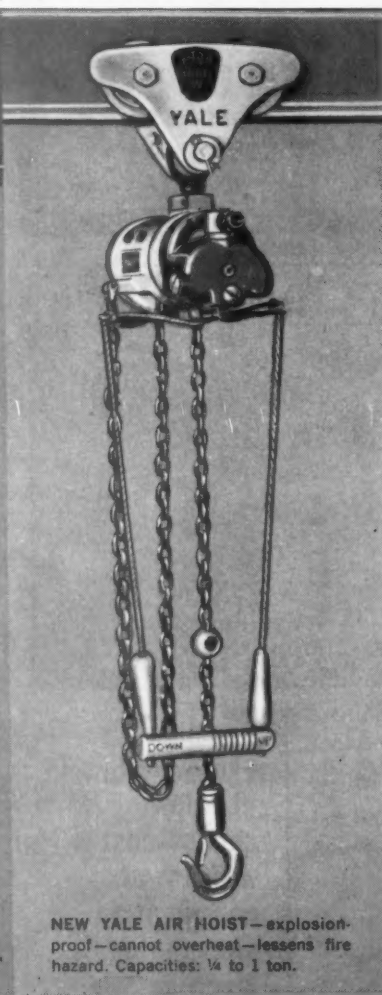
Yale Materials Handling Division, a division of The Yale & Towne Manufacturing Company. Manufacturing Plants: Philadelphia, Pa., San Leandro, Calif., Forrest City, Ark.

midget king electric out for load... for

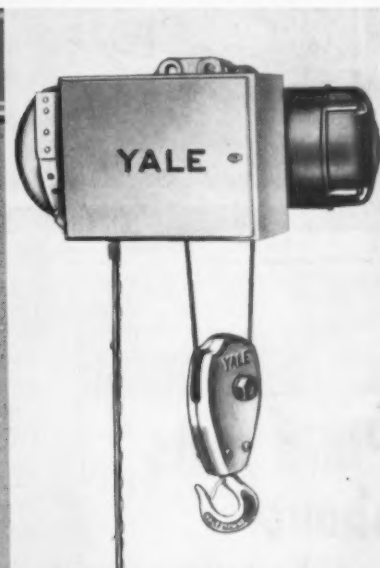
3 NEW YALE HOISTS THAT SPELL GREATER ECONOMY!



NEW YALE LIGHTWEIGHT ADJUSTABLE TROLLEY HOIST offers up to 95% efficiency. Capacities: $\frac{1}{2}$ to 12 tons.



NEW YALE AIR HOIST—explosion-proof—cannot overheat—lessens fire hazard. Capacities: $\frac{1}{4}$ to 1 ton.



NEW YALE SELECTRON 5-SPEED HOIST CONTROLLER for use with Cable King Electric Hoists. Constant speed control under varying loads prevents load damage.

YALE®

INDUSTRIAL LIFT TRUCKS
TRACTOR SHOVELS • HOISTS

YALE & TOWNE

THE YALE & TOWNE MANUFACTURING CO. • MATERIALS HANDLING DIVISION • PHILADELPHIA 15, PA., DEPT. MH1H.

Products: Gasoline, Electric, Diesel and LP-Gas Industrial Lift Trucks • Worksavers • Warehouse • Hand Trucks • Industrial Tractor Shovels • Hand, Air and Electric Hoists



**Exciting new
best seller!
Yours FREE!**

● Wilton's new "book" is more than a catalog! It's actually a production know-how manual that shows you in-plant photos and operating case histories of how Wilton clamping tools (both manual and powered) have been used by the best brains in the business to save production time and money. Of course we show our line, and that too is unique—Wilton has the most complete line of clamping tools in the world. Write for your copy now; it's an education that will pay dividends in your plant. No obligation, of course.

WILTON

Wilton Tool Manufacturing Co. Inc.
Schiller Park, Illinois

PM-89

For More Information Write No. 247 on Inquiry Card—Page 32

**Plain facts
about
washroom
towel costs!**



We have been making top quality washroom paper towels since 1925. But we know that high quality by itself will not produce the most efficient towel service.

So we combine our quality towels with the controlled Turn-Towl cabinet—to produce the perfect washroom towel combination.



**Result:
Excellent towels
at a low
service cost —
with towel
consumption
dropping as
much as 50%.**

For More Information Write No. 248 on Inquiry Card—Page 32

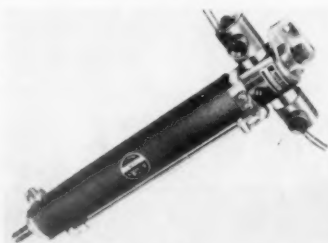
Products

(Continued from page 144)

Operable under extreme temperature conditions from —65 to 275 degrees, regulators have rated flow capacity of 10 GPM, but have been especially developed to meet AN pressure drop requirements up to approximately 20 GPM. **Kemp Aero Products.**

Write No. 44 on Inquiry Card—Page 32

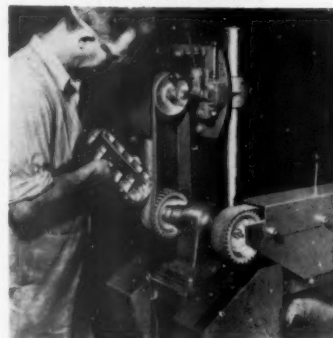
Two New Accessories for Air Cylinders



Two new accessories have been introduced for Allenair air cylinders. The first is an accessory pin with a throw of .062 in. which can be provided at either end of any cylinder. Actuated by cam-boss on the piston rod, pin in turn can actuate electric switch or small button valve in synchronization with air cylinder. Second item is a bleeder valve which can also be provided at either end of any cylinder and which is actuated by cam-boss in same manner. New valve's function is to bleed air from another piece of equipment as the cylinder reaches the end of its stroke. **Allenair Corp.**

Write No. 45 on Inquiry Card—Page 32

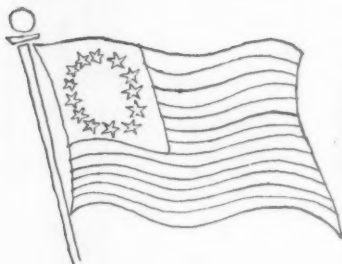
Low-Cost, Versatile Belt Grinders



A new line of low-cost 2-½ in. belt grinders is designed for fast, (Please turn to page 154)

PURCHASING

How many of these "firsts" do you know?



1. Which was the first of the original 13 States in the Union?



2. Where was the first commercial radio station in America?



3. What two countries signed the first World War II Peace Treaty?



4. Who was the first Vice President of the United States?



5. Who was the first man to knock out the Australian heavyweight George McScutcheon?



6. What is the No. 1 Wire Rope in America?

Answers: (1) Delaware, Dec. 7, 1787 (2) Pittsburgh, Station KDKA (3) Britain and Siam, Jan. 1, 1946 (4) John Adams, 1789-1797 (5) There is no Australian heavyweight George McScutcheon. (We didn't want you to get a perfect score.) (6) Tiger Brand.

**American Steel & Wire
Division of
United States Steel**

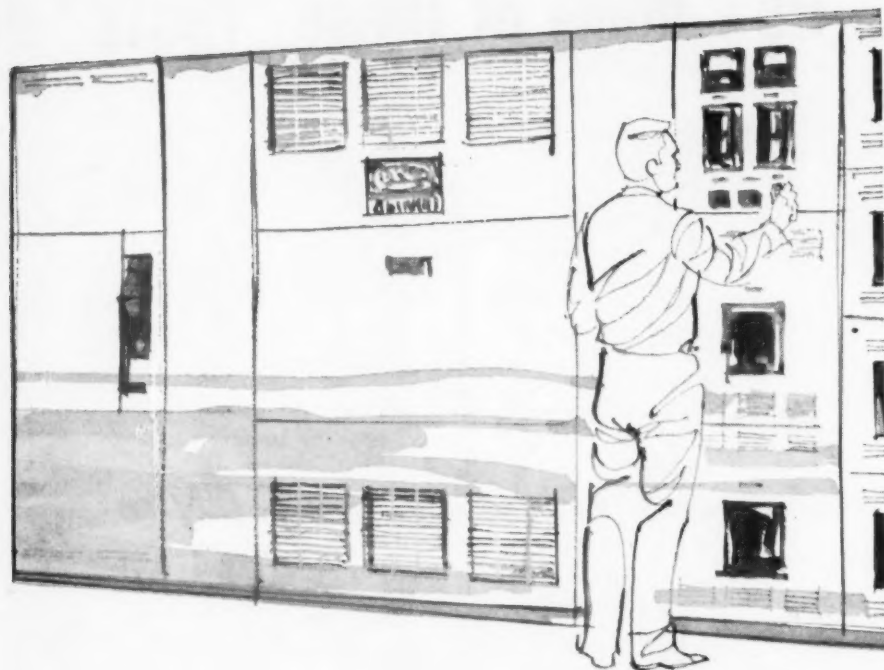


Columbia-Geneva Steel, San Francisco, Pacific Coast Distributors
Tennessee Coal & Iron, Fairfield, Alabama, Southern Distributors
United States Steel Export Company, Distributors Abroad

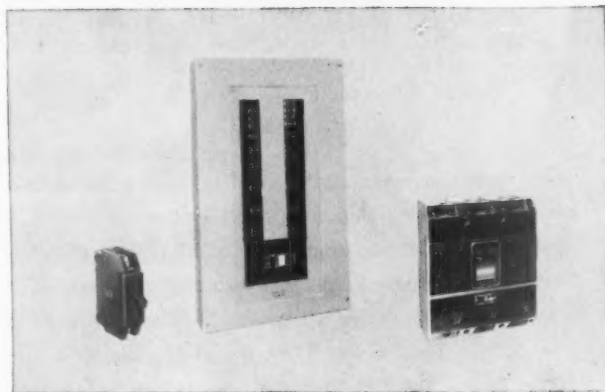
Tiger Brand is America's No. 1 Wire Rope because: it is made by a company that maintains the most complete wire rope research and manufacturing facilities in the country. There are hundreds of different types of Tiger Brand Wire Rope, and every type is specially engineered to fit a specific job. This is why Tiger Brand has the *right rope for the job* . . . the rope that wears better and lasts longer.

Tiger Brand Wire Rope is made by one company, U. S. Steel, that mines its own ore, makes its own steel, develops new and stronger types of steel, and maintains one of the country's largest staffs of wire rope engineers. Every step of production, from ore to finished product, is carefully controlled to guarantee the quality that has made Tiger Brand America's No. 1 Wire Rope. American Steel & Wire Division, 614 Superior Avenue, N.W., Cleveland 13, Ohio.

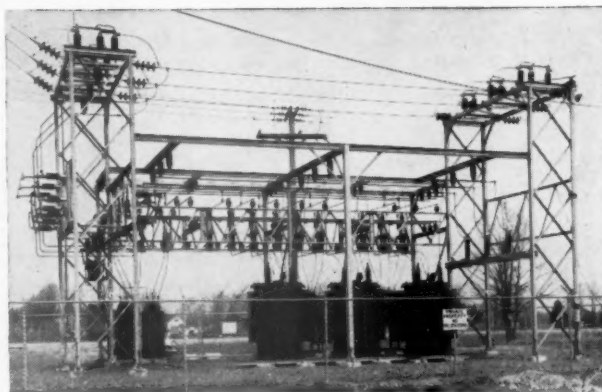
USS and Tiger Brand are registered trademarks



PRECAUTIONS



Keeping the bugs out of panelboards. The better construction of I-T-E molded case circuit breakers means more dependable performance. Broadest range of sizes and types in ratings of 15 to 800 amp continuous. Wide pole spacing eases installation and increases safety. Panelboard models have enclosed front-connected pressure terminals that accept conductor sizes commensurate with breaker ampere ratings. In larger sizes, convenient externally adjustable instantaneous trip permits easy, fast setting to load requirements.



Outdoor structures . . . controlled every step. I-T-E not only handles all the designing and fabrication of complete outdoor structures, but does it all in the same plant—under one responsibility. Once the single-line diagram has been prepared, engineering and manufacturing personnel closely coordinate every step of structure production. Customers benefit from a more efficient use of materials, easier and faster erection at the site, and virtual elimination of rework. Structures are available in steel or aluminum for any application requirements.



In specifying an I-T-E secondary unit substation, you take no chances on whether it will install and work properly. Because I-T-E has already taken elaborate precautions to insure that it will.

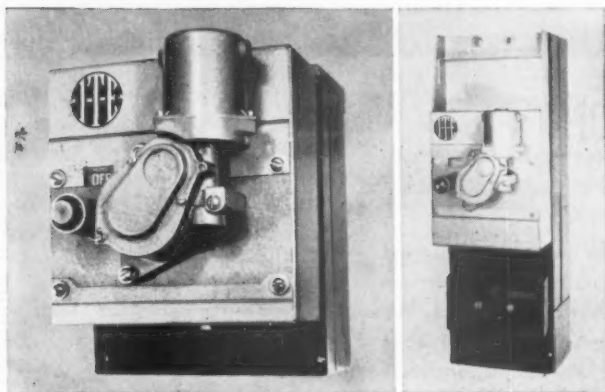
First, only I-T-E builds complete unit substations in one plant . . . where transformer engineers and switchgear engineers work within walking and talking distance of each other. This insures better coordination of design for superior performance.

Second, your substation is completely assembled at I-T-E and tested before shipment. This insures that all parts fit

together and holes match up, and that it will meet its electrical specifications.

Third, every I-T-E substation is shipped complete at one time . . . to arrive on schedule and for immediate installation. This insures against costly installation delays and having substation parts standing around in the weather waiting for other parts to arrive.

You will be taking a wise precaution to specify I-T-E whenever you choose electrical equipment. Because throughout the line, I-T-E has taken precautions to give you better equipment at no greater cost.



Molded case economy . . . remote control luxury. Now I-T-E molded case circuit breakers are available with new **TELEMAND*** motor-operators for remote opening, closing or resetting. Pushbutton control from a distance at far greater economy than alternative devices. Permits automatic operation. Also operable direct.

*T.M. I-T-E Circuit Breaker Co.

I-T-E CIRCUIT BREAKER COMPANY

1900 Hamilton St., Philadelphia 30, Pa.

- | | |
|---|---|
| <input type="checkbox"/> Secondary unit substations | <input type="checkbox"/> TRANFO-UNITS |
| <input type="checkbox"/> Molded case circuit breakers | <input type="checkbox"/> Metal-clad switchgear (4.16 and 13.8 kv) |
| <input type="checkbox"/> Outdoor structures | <input type="checkbox"/> Power switching centers |
| <input type="checkbox"/> TELEMAND motor-operated molded case circuit breakers | <input type="checkbox"/> Primary unit substations |

☐ Other

Name Title

Company

Street

City Zone State

SEND COUPON OR WRITE

Get complete, up-to-date information on I-T-E equipment



I-T-E CIRCUIT BREAKER COMPANY

For More Information Write No. 249 on Inquiry Card—Page 32

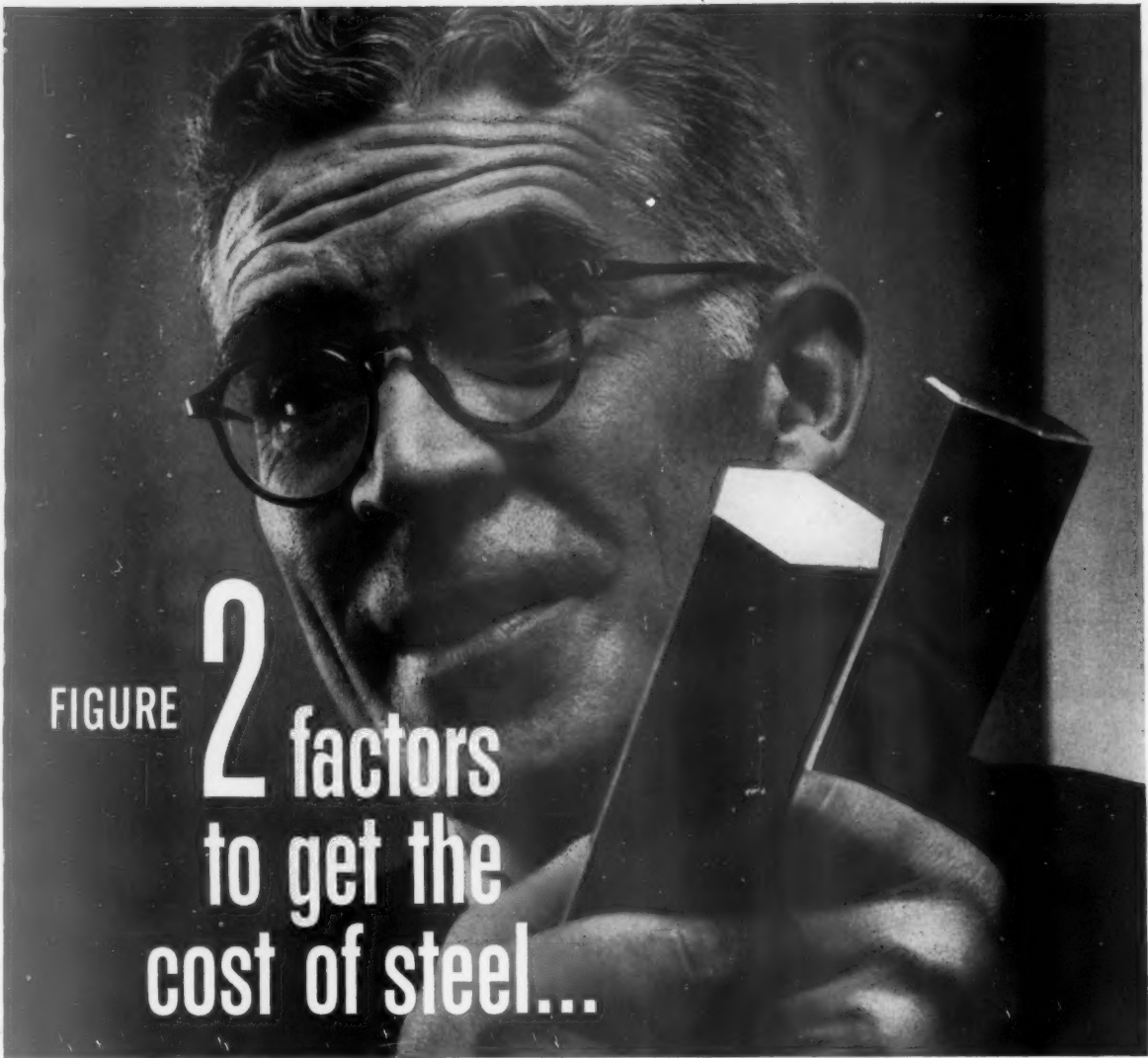


FIGURE 2 factors to get the cost of steel...

Price and the **COST OF POSSESSION!**

If you don't figure the two, you won't have a true picture of your steel costs.

Many smart, informed steel users save money by drawing on the inventory and facilities of their Steel Service Centers. They get technical assistance. And they get steel when they want it, delivered, cut-to-size, ready for production.

This means less capital tied up in inventory. It saves costs of space. Operating costs for storing, handling, cutting

are reduced. Tax and insurance costs are kept to a minimum.

Compare all your costs of inventoried steel with the cost of steel delivered as needed. Use the chart at the right. For more information, get the booklet, *What's Your Real Cost of Possession for Steel?* from your nearby Steel Service Center. Or write to American Steel Warehouse Association, Inc., 540-E Terminal Tower, Cleveland 13, Ohio.



**The American Steel Warehouse
...YOUR STEEL SERVICE CENTER**

For More Information Write No. 251 on Inquiry Card—Page 32→

COST OF POSSESSION FOR STEEL IN YOUR INVENTORY

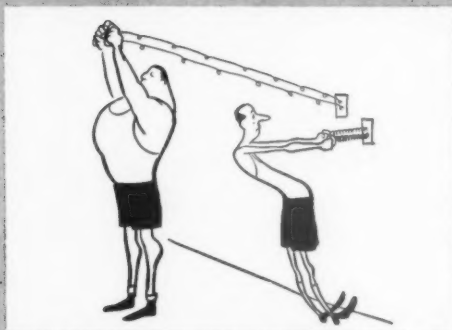
Per ton delivered	_____
Cost of capital:	_____
Inventory	_____
Space	_____
Equipment	_____
Cost of operation:	_____
Space	_____
Materials handling	_____
Cutting & burning	_____
Scrap & wastage	_____
Other costs:	_____
Obsolescence	_____
Insurance	_____
Taxes	_____
Accounting	_____
TOTAL	_____

COST OF FREEDOM-FROM-RISK STEEL FROM YOUR STEEL SERVICE CENTER

Per ton, cut-to-size, and delivered	_____
TOTAL	_____



VISCOSITY COIL



EXECUTIVE COILS



SAFARI COIL

What do "Coils" mean to you?

Coils call to mind so many things. But if to you they mean springs, those mechanically precise activators of energy, then we're on common ground. Our organization specializes in all kinds—compression, extension, torsion, flat coil, volute . . . maintains unequalled engineering and manufacturing facilities throughout the nation. So let us supplement the work of your own engineers with our specialized knowledge and experience in the design and manufacture of springs, small stampings, and wire forms . . . made to your specifications.

Our "Picture Book of Springs" shows thousands of custom-produced parts, typical of our service. Write for a copy to pass along to interested people in your organization.



Associated Spring Corporation



General Offices: Bristol, Connecticut

Wallace Barnes Division, Bristol, Conn. and Syracuse, N. Y.

B-G-R Division, Plymouth and Ann Arbor, Mich.

Gibson Division, Chicago 14, Ill.

Milwaukee Division, Milwaukee, Wis.

Canadian Subsidiary: The Wallace Barnes Co., Ltd., Hamilton, Ontario and Montreal, Quebec

Raymond Manufacturing Division, Corry, Penna.

Ohio Division, Dayton, Ohio

F. N. Manross and Sons Division, Bristol, Conn.

San Francisco Sales Office, Saratoga, Calif.

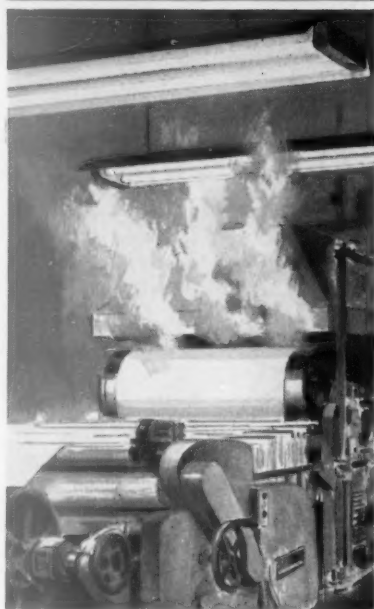
Seaboard Pacific Division, Gardena, Calif.

Cleveland Sales Office, Cleveland, Ohio

Dunbar Brothers Division, Bristol, Conn.

Wallace Barnes Steel Division, Bristol, Conn.

Hints on fluorescent starter selection



G-E FS-4NA STARTER BEST FOR NO-BLINK OPERATION IN HOT, HUMID AREAS

Where extreme heat and humidity create a problem in starting fluorescent lamps, switch to the General Electric FS-4NA starter — the starter created especially for these problem areas.

The G-E FS-4NA is an *automatic reset, no-blink* type starter for standard 40-watt fluorescent lamps.

Ask your G-E distributor for the "G-E Starter Selection Chart and Maintenance Guide for Fluorescent Lighting." General Electric Company, Wiring Device Department, Providence 7, Rhode Island.



GENERAL ELECTRIC

For More Information Write No. 252
on Inquiry Card—Page 32

154

Products

(Continued from page 148)

efficient grinding, buffing and deburring in commercial metal-working shops, tool rooms, and plant maintenance shop. In addition to the 4 standard setups, a variety of accessories to build low-cost special job setups are available. Features on new **Walker-Turner Grinders** include lubricated-for-life, double-sealed ball bearings; precision bored seats; precision ground shafts; dynamically balanced arbor pulleys. Belt speed is 5400 f.p.m. with 6 in. contact roll using standard 1725 motor.

Write No. 46 on Inquiry Card—Page 32

New Line of Electrolytic Cleaners

Electrolytic cleaners in a new line meet high conductivity requirements at lower concentrations without loss in cleaning ability. Designed for the removal of intentional soils from aluminum and aluminum alloys, zinc, steel, brass, copper, nickel, etc., cleaners have maximum detergency and wetting properties which make them highly acceptable for the electroplating industry. High alkalinity, soil carrying capacity and solution stability plus elimination of heavy foam buildup are features. **Detrex Chemical Industries, Inc., Box 501, Detroit 32, Michigan.**

Write No. 47 on Inquiry Card—Page 32

Hand Pump Counter Measures Liquid Flow

A simple, low-cost pump counter to indicate the flow of fuels, chemicals and other liquids can be mounted on any hand-operated model in which pumping is done through push-pull linkage. Intended for economy use in plant and general purpose applications, it is expected to be particularly valuable where electricity is not readily available, as on construction jobs, remote pipeline and storage sites and the like. **Veeder-Root, Inc., Hartford 2, Conn.**

Write No. 48 on Inquiry Card—Page 32

AUTOMATIC ASSEMBLY

IS FAST,

ECONOMICAL,

TROUBLE-FREE

with Milford
tubular rivets
and automatic
riveters

Mass production and automatic assembly cut costs only when all operations are trouble-free. That's why the high strength and uniform quality of Milford Tubular Rivets, plus Milford's wide line of precision riveters, are playing an active role in slashing today's production costs. For the answers to assembly problems... get in touch with Milford first!



THE **MILFORD RIVET**
MILFORD RIVET & MACHINE CO.

MILFORD, CONNECTICUT • HATBORO, PENNA.
ELYRIA, OHIO • AURORA, ILL. • NORWALK, CALIF.

For More Information Write No. 253
on Inquiry Card—Page 32

PURCHASING

IMPACT VS. PLASTIC LAMINATES

It's more than
"How Much"
and "How Often"



It is easier to picture impact than to describe the effects of it upon plastic laminates such as Synthane. For one thing, impact is measured in several ways. In the standard A.S.T.M. (Izod) test notched samples $\frac{1}{2}$ " x $\frac{1}{8}$ " x $2\frac{1}{2}$ " are struck by a pendulum. This test is an accepted standard yet it seldom measures the impact behavior upon plastic laminates. Reason: certain grades of laminates are "notch sensitive", a condition which they may never meet in a practical application.

Nor does the Izod test indicate the ability of Synthane to resist repeated blows. Figure 1 shows how many times blows of a pre-determined intensity can be absorbed before the material breaks down.

Temperature Affects Impact Strength

Even repetitive impact is not the whole of the story. Temperature has an in-

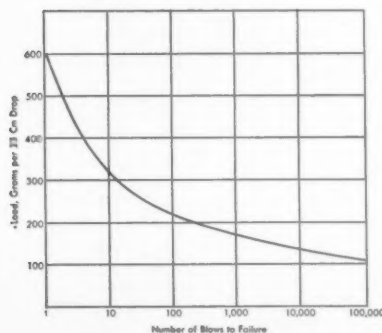


FIG. 1 Intensity of impact vs. cycles

teresting effect upon impact strength (Izod). The curves in Figure 2 show that at extremely low temperatures glass-base grades of Synthane actually improve in impact strength, while other grades improve as they are warmed. The impact strength of Glass Epoxy Grade G-10 improves sharply at temperatures above 75° F.

Impact Rarely Travels Alone

Like so many other properties of laminates, impact strength can rarely be regarded alone; it must be related to other properties required for the application. A sheet of Synthane has less impact strength than an equal thickness of steel. But steel is over seven times heavier and is a conductor, not an insulator. It is the combination of other properties desired, including impact strength, that is decisive.

Typical applications for Synthane's combined properties under impact conditions are (a) Grade LE Synthane in the shock struts of Airplane Landing Gear (light weight, low coefficient of friction, compressive strength, wear and shock resistance); (b) Welding Tong Insulation, made from G-5 Synthane

(high resistance to impact, excellent resistance to heat, and good dielectric strength); (c) Ignition Breaker Arms of Grade C molded-laminated Synthane (impact resistant, wear resistant, dielectrically strong).

If you have any question about the selection of the proper grade of Synthane for your impact application refer it to us directly or to a Synthane representative. Make sure you obtain the most of what you want for the money. For information write Synthane Corp., 7 River Road, Oaks, Pa.



Synthane laboratory machine for measuring impact fatigue.

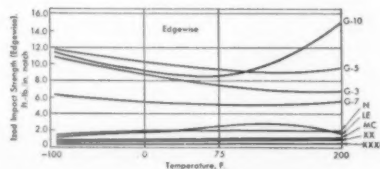


FIG. 2 Effect of temperature on impact strength

SYNTHANE
CORPORATION, **S** OAKS, PENNA.
Laminated Plastics for Industry
Sheets, Rods, Tubes, Fabricated Parts
Molded-laminated, Molded-macerated

For More Information Write No. 254 on Inquiry Card—Page 32

For More Information Write No. 255 on Inquiry Card—Page 32→

AUGUST 17, 1959

integrated CRUCIBLE steel service

SALES-SERVICE ENGINEER
(TOOL STEEL SPECIALIST)

TRUCK DRIVER

WAREHOUSE SAW MAN

INVENTORY
SPECIALIST

SALES-SERVICE
ENGINEER
(ALLOY STEELS
SPECIALIST)

METALLURGIST

WAREHOUSEMAN

ACCOMMODATION SERVICES

SALES-SERVICE
ENGINEER
(STAINLESS STEEL
SPECIALIST)

SWITCHBOARD OPERATOR

SALES-SERVICE ENGINEER
(ALL PRODUCTS)

TELETYPE OPERATOR

INSIDE ACCOUNT SALESMAN

Local Crucible personnel provide service in depth, ranging from quick reports on steels available to expert assistance with metal working problems.

Average warehouse staff is backed up by Crucible Metallurgists who, although located at mills, will travel.

maintains broad range of local customer services

— ranges from in-stock deliveries to metallurgical research

Here's service in depth, made possible by Crucible's integrated operation. It starts with in-stock deliveries of the steels you need and goes on to provide complete technical assistance for engineers, production, toolroom and maintenance men. And the entire service is available from all of Crucible's 32 warehouses —

(1) *Deliveries from local stocks* of 16,000 specialty steel items, including all grades, shapes and sizes.

(2) *Basic specialty steel data* — complete breakdowns on properties, characteristics, as well as machining and fabrication details. (Warehouse account salesmen can frequently recommend the best steel for the end use.)

(3) *Metalworking assistance* with unusual machining and fabricating problems — by trained, experienced sales-service engineers who specialize in tool steels, stainless, alloys.

(4) *Metallurgical research* — help in developing steels for tomorrow's more exacting applications from Crucible's metallurgists, who will come to your plant on call.

Here's what one purchasing agent recently had to say about this over-all service: "We need lots of help with new steels — ones we haven't used before. The reason we rely on Crucible warehouses is because their men know the answers — or can get them for us quickly."

Why not simplify your own specialty steel purchasing problems by taking advantage of this integrated service? *Crucible Steel Company of America, Dept. PH13, Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

STOCK LIST

Keeps you up-to-date on local stocks of specialty steels. Just ask the Crucible salesman to place your name on the regular mailing list.

One Source
For All
These Steels



Crucible metallurgists will come to your plant, if necessary, to help engineers use new steels or metals like titanium.



Sales service engineers' experience with fabricating, machining problems can solve toolroom and production problems.



Truck drivers speed orders for over-night delivery to you — or earlier if your order is an "emergency."

TOOL STEELS — Water, oil, air hardening, shock resisting, hot work, plastic and die casting steels in all forms, including bars, sheets, plates, drill rod, hollow bars, forgings and flat ground stocks

HIGH SPEED STEELS — Crucible's famous "Rex"® steels: Rex Thrift Finish rounds, hot rolled and cold drawn flats and squares, drill rod, forgings, sheets, plates, and tool bits

STAINLESS STEELS — Bars, sheet, strip, wire, cold heading wire, metalizing wire, plates, angles

FREE MACHINING STEELS — Crucible Max-el® rounds, hexagons, plates and brake die steel

ALLOY STEELS — Bars, billets, strip and sheet

COLD ROLLED CARBON SPRING STEELS

DRILL STEELS — Hollow and solid drill steels

ALUMINUM EXTRUSION DIE STEELS

HOLLOW TOOL STEEL



Teletype operators get direct reports on quantities available everywhere in the warehouse system — from Crucible's inventory-control computer room.

HARD FACING ROD

PLASTIC MOLD STEELS

PERMANENT MAGNETS

— and many others

CRUCIBLE STEEL COMPANY OF AMERICA

Branch Offices and Warehouses: Atlanta • Baltimore • Boston • Buffalo • Charlotte • Chicago • Cincinnati • Cleveland • Columbus • Dallas • Dayton • Denver • Detroit • Erie, Pa. • Grand Rapids • Harrison • Houston • Indianapolis • Kansas City • Los Angeles • Milwaukee • New Haven • New York • Philadelphia • Pittsburgh • Portland, Ore. • Providence • Rockford • Salt Lake City • San Francisco • Seattle • Springfield, Mass. • St. Louis • St. Paul • Syracuse • Tampa • Toledo • Tulsa • Toronto, Ont.

Office Equipment and Supplies

Take The Money From Your Files

THE ever-mounting costs of maintaining records is being studied very closely by purchasing agents in order to bring them under control.

In recent surveys by Remington Rand division of Sperry Rand Corporation it has been shown that the records held by the average organization can be classified as follows:

Retained permanently	10%
Retained for current needs	20%
Destroyed	35%
Transferred	35%

Thus, in the average file approximately 70% of the records have outlived their usefulness but are retained in active files. It has been estimated that \$9362 can be saved every year if you have 50 four-drawer files; \$4681 if you have 25 four-drawer files; and \$18,724 if you have 100 four-drawer files.

This is computed by multiplying the number of files by \$281, the average annual cost for an alphabetic four-drawer file. This \$281 includes salary of file clerk at the rate of \$2104, 7 sq. ft. of floor space at \$3 per sq. ft., supplies and file amortization. (From National Salary Survey, 1957—National Office Management Assn.)

Increased efficiency can be achieved by first taking inventory of purchasing department files. The files should then be classified and cleared of material scheduled for retention, destruction, or microfilming. File clerks will then



Files like this can be quite expensive for your company if they are loaded down with outdated and obsolete material. Periodic reviews of files can be a big money-saver.

no longer need to plow through useless over-age material to find records.

One midwestern company saved as much as 80% of its filing time by cutting from 12 to four the number of different file classifications in a single department.

Take the following test to determine if your company or your department needs a records management program.

Test One—Do you have an organized plan covering systematic retention, protection transfer, microfilming, and destruction of all papers and documents?

Test Two—How long does it take to find or file a paper in your department? It should not take longer than 1 to 1½ minutes. If

it takes longer your company probably needs file organization and the installation of an up-to-date filing system.

Test Three—Determine whether you have inactive records in your active files. You do this by dividing the total number of references to the files in a given period by the total number of records filed in that same period. If the references are over 21%, most of your records are active. If it runs 11% to 20%, there are inactive records in the file.

If it is as low as 10% or less, your files are loaded with inactive material. In this event you need and stand to profit by records analysis, records retention, and file organization.

Office Equipment



A precision punching machine, known as The Professional, has been announced by **General Binding Corp., Northbrook, Ill.** Designed for office or plant, the new hand-operated unit features over-size precision-built dies for punching multiple holes for metal or plastic loose-leaf binding. It punches rectangular holes enabling an interchange of punched sheets between all types of bindings.

Write No. 49 on Inquiry Card—Page 32



A new line of steel, vertical file cabinets has been introduced by **Fraser & Johnson Co., 1900 17th Street, San Francisco.** The new cabinets feature disappearing doors operating on nylon bearings, flush sides, baked enamel finish, and divider relocators. The units are shipped completely assembled. The files are available in standard or legal size with five or six shelves, with or without doors and locks.

Write No. 50 on Inquiry Card—Page 32



A new magazine rack has been introduced by **W. C. Heller & Co. of Montpelier, Ohio.** It features a hard lacquer finish and is available in either oak or birch exposure, natural finish. The rack measures 41 1/2" high, 36 3/8" wide, and 16" deep.

Write No. 51 on Inquiry Card—Page 32

A new, long wearing, all-purpose plastic base carbon paper has been announced by **Kee Lox Manufacturing Co., Rochester, N. Y.** The paper is designed to satisfy all the requirements of general office procedures, thus eliminating the necessity of stocking several types of paper. Called, **Balanced Brand**, it will fulfill all normal multiple-copy requirements of the average office and it is suitable for use with almost any type of machine.

Write No. 52 on Inquiry Card—Page 32



A new attache case covered in brown vinyl gives the appearance of leather. Available from **The Hahn Co., 2311 Fox Hills Drive, Los Angeles, Calif.,** it has rounded corners, three-side zipper closing, and brass hardware. It is a low-cost case that can double as an overnight bag. It measures 15 1/4" x 10 1/2" x 3".

Write No. 53 on Inquiry Card—Page 32



**FOR ALL
ERASING...
Take your
Pick!**

KLENZO-33 WITH AND WITHOUT BRUSH

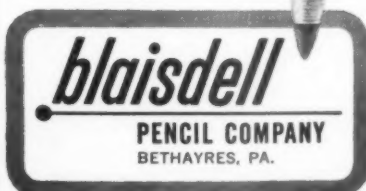
Famous Klenzo quality in convenient wood-casing. Sharpens to "needle point" for ballpoint, typewriter and ink work.

KLENZO WITH AND WITHOUT BRUSH

The standard for erasing. Paper wrapped to permit quick, economical repointing.

A Klenzo erases equally good wrapped in paper or cased in wood.
AT BETTER STATIONERS EVERYWHERE

Send 10c for twin samples naming this publication.

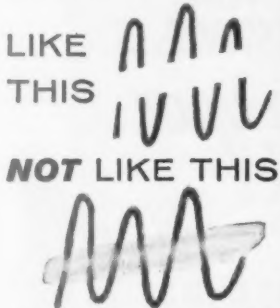


Write No. 256 on Inquiry Card—Page 32

At last
FOR THOSE WHO MAKE
AN OCCASIONAL MISTAKE



Nobody's perfect—that's why they put erasers on pencils. Now—for the first time, a thin-lead, non-smudge, fade-proof colored pencil that erases cleanly, easily, completely!



THE ONLY COLORED PENCIL OF ITS KIND

No more messy, shredded papers! No more valuable working time lost fighting to erase colored pencil marks! With amazing, new ERASABLE Color-Tex — you can erase color as easily as you erase black lead pencil marks. Only the color comes off! No ghosts — no shredded paper!

TRY COLOR-TEX ERASABLE
10 DAYS FREE

See for yourself how General's special "Carbo-Weld" process makes Color-Tex stronger and stay sharp longer! See how much faster your accountants, book-keepers, secretaries work — once they're free from hard-to-erase, smudgy, colored pencils!

Available in Carmine Red or Indigo Blue — ask your dealer for General's New ERASABLE Color-Tex Pencils — or write today on your letterhead for FREE SAMPLES.

Medium or Hard Grades
with or without erasers

GENERAL
PENCIL COMPANY

69 FLEET STREET, JERSEY CITY 6, N. J.
For More Information Write No. 257
on Inquiry Page 32

Office Equipment



A new model photo copying machine, designed and manufactured by General Photo Products Co., Inc., Chatham, N. J. automatically exposes, processes and prints 60-120 sharp, error-free copies per hour. It will reproduce anything printed or written up to 9 1/4" wide by any length. This includes colors and ball point pen, and may be used for duplicate copies from one negative.

Write No. 54 on Inquiry Card—Page 32

A new lint-free and highly durable nylon fabric has been developed by Burlington Industrial Fabrics Co., Greensboro, N. C. for use as a typewriter ribbon. The new fabric, being made into ribbons by Standard Products Corp., results in sharp, print-like impressions. Its high strength makes it possible to produce a thinner fabric resulting three times as much ribbon on a standard spool. Engineered for use on electric machines it can be used to advantage on manual typewriters as well.

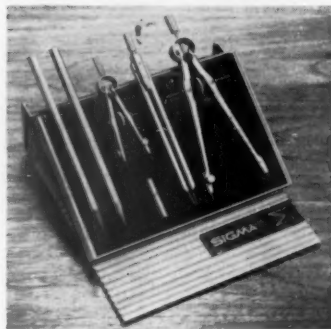
Write No. 55 on Inquiry Card—Page 32



A new loose-leaf plastic binding has been designed to meet the production speed required by plant and office binding machines. At the same time it permits anyone without equipment to remove and add pages quickly. The new

binding was introduced by General Binding Corporation, Northbrook, Ill. Two locks, one at each end, secure the binding's fingers to the backbone. Thumb pressure will open each lock. The plastic strip containing the binding-fingers then slides off the zip track. The fingers are available in fourteen colors. The flat design of the backbone is ideal for title silk screening.

Write No. 56 on Inquiry Card—Page 32



Engineering drawing sets are now available in non-breakable plastic cases that retain their new appearance for years. A flip-stand cover makes all the nickel-silver and steel instruments instantly accessible. Moderately priced the set is made by Eugene Dietzgen Co., 2425 N. Sheffield Ave., Chicago, Ill.

Write No. 57 on Inquiry Card—Page 32



A new 14" high mobile stool for bin and drawer filing use has been added to the Krueger Metal Products Co. line of Green Bay, Wisc. It features heavy gauge, electrically seam-welded tubular steel legs. The large (14" diameter) seat is die-formed with a fully curled bottom safety edge. The unit features extra large roller bearing caster wheels for greater mobility.

Write No. 58 on Inquiry Card—Page 32

PURCHASING



Food for thought...

Gerber Baby Foods speeds communications with field forces—saves \$22,000 annually in dictating and stenographic time—with the Edison Voicewriter

"Our Edison Voicewriter dictation system has permanently overcome the problem of communications between our home office and field organization," states Mr. R. C. Hastings, Office Services Manager for Gerber Products Company of Fremont, Michigan... famed for fine baby foods. "And amazingly enough," adds Mr. Hastings, "we not only increased the output of our secretarial staff... but managed to save over \$22,000 a year with Voicewriter on the job."

A Voicewriter tryout is easy—for any office, large or small! No need to start off with a large system. With the all-new Edison Voicewriter doubling as a dictating instrument and a secretarial transcriber, any executive can quickly

clean up correspondence at his desk, at home, or on the road... have "new" time for other work. Cost? Only \$18.15 a month.

Secretaries like the Voicewriter, too! Your voice comes through accurately, without interruptions, on the Voicewriter Diamond Disc. By getting correspondence out of the way faster, with less effort, your secretary will have more time for the interesting responsibilities of a real "Girl Friday."

You can rely on Edison! There's a Voicewriter system to meet the correspondence needs of every business and professional man. And every Voicewriter user benefits from Edison's 70 years of experience in office correspondence.



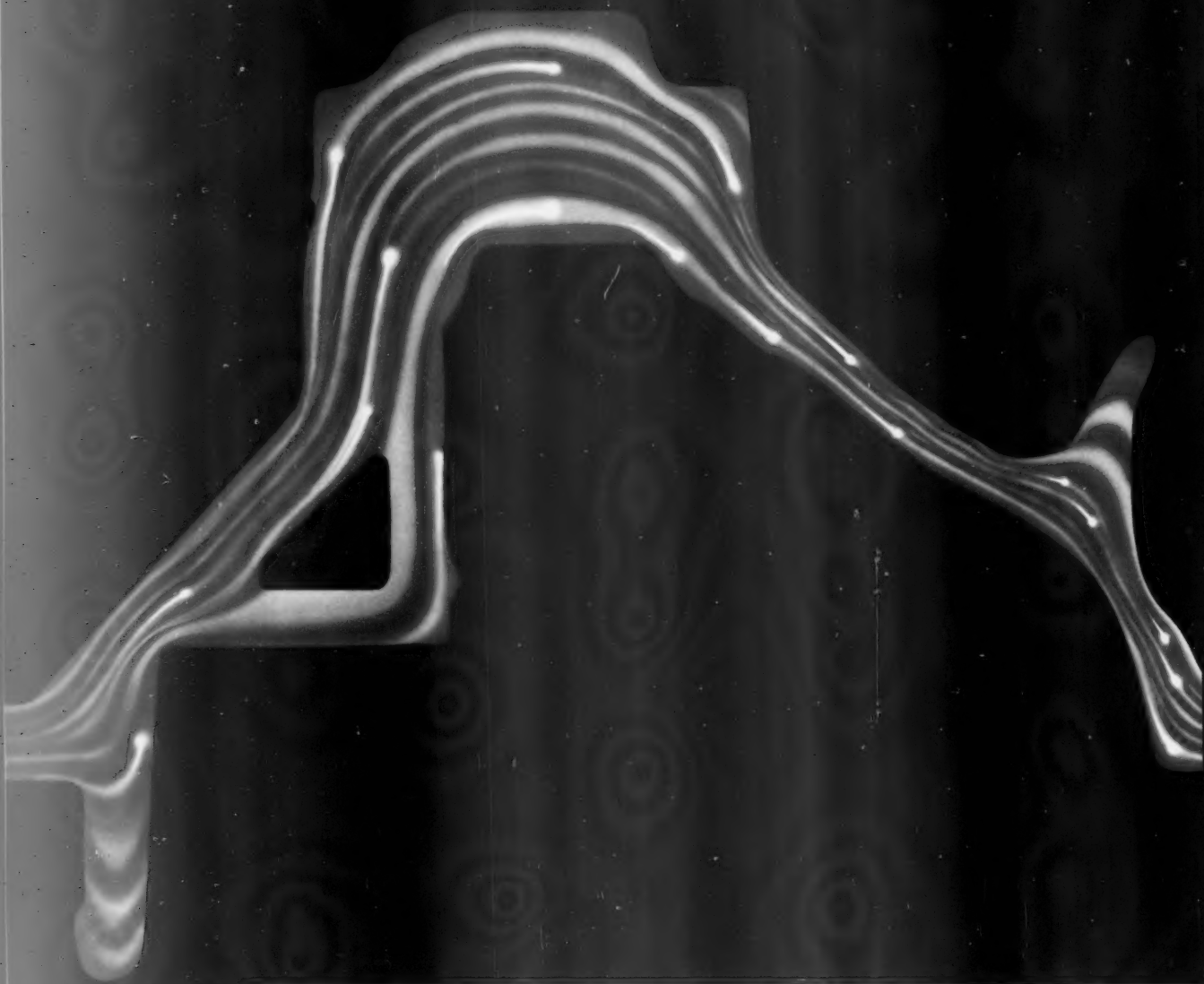
There's an EDISON product for every dictating and recording need... the individual Voicewriter, network systems using dial or Televoice phones, pocket-size battery-operated Midgetape. For free demonstration, or literature, write Dept. PM-817 below.

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National Guard Armory • Washington, D. C.
SEPTEMBER 23-24-25

Edison Voicewriter



A product of Thomas A. Edison Industries. McGraw-Edison Company, West Orange, N. J. In Canada: 32 Front Street W., Toronto, Ontario



Fluid mapper pattern demonstrating liquid flow through a cross section of a Malleable differential carrier.

Versatility is **Malleable**

The ability to do most any job well is synonymous with Malleable iron castings. The variety of tasks they perform, from the commonplace to the spectacular, is legend. The strength and toughness . . . the freedom of design . . . the wide range of shapes and sizes . . . the excellent machinability . . . the economies achieved . . . all these advantages of Malleable combine to create an unexcelled reputation for versatility.

Whatever your needs, look first to Malleable.

For information or service, call on one of the progressive firms that identify themselves with this symbol—



If you wish, you may inquire direct to the Malleable Castings Council, Union Commerce Building, Cleveland 14, Ohio, for information.

Versatility Is Key to Malleable's Increasing Use

Recent metallurgical advances have made the Malleable irons a family of metals uniquely capable of meeting the most diverse design, production and performance requirements. Whether the vital consideration is high strength, toughness, ductility, hardness, machinability, high or low temperature performance, wear resistance, or economy and adaptability for complicated designs, Malleable castings have the versatility to meet exacting specifications.

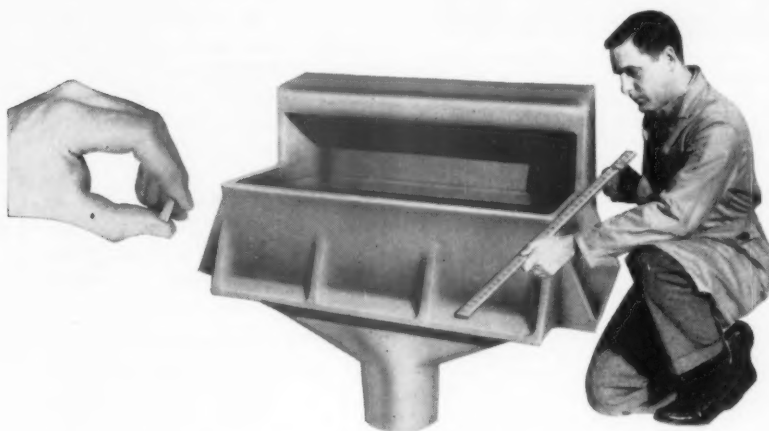
For versatility of shape, the casting process is unexcelled. It permits direct production of the most complicated components. The metal is placed exactly where it is needed regardless of the intricacy of the design.

The capabilities of the metal to be

cast are of even greater significance, for every application has a different set of requirements. Here, Malleable iron provides unique opportunities to obtain better parts at less cost.

Holes can be punched in Malleable, surfaces can be coined to meet rigid specifications. The pearlitic Malleables can be surface-hardened for even better wear resistance. These and other advantages make today's Malleable iron one of the most versatile engineering materials available.

Although Malleable iron's properties are flexible, depending on service requirements, certain relationships remain constant. Malleable provides more strength and toughness per dollar than any other metal. It is also the most machinable of all ferrous metals of similar properties.



Malleable castings can be produced in sizes ranging from the hammer handle wedge, shown here, weighing less than an ounce, to the 1,125 pound bridge scupper. Throughout this range is an endless variety of castings, best made of Malleable for highest quality at lowest cost.

Shapes and sizes of Malleable castings are virtually limitless. The combination of Malleable's good castability with modern production

techniques regularly results in sections as thin as 1/16" and tolerances of $\pm .005$ " per inch in sections of 1", with excellent surface finishes.

Engineering Aids Available

While the design of Malleable castings is not complicated, it will pay you to consult a skilled Malleable engineer who can offer time and cost saving suggestions for the production of better parts. As another aid to basic Malleable casting de-

sign, a special folder — *Data Unit 104 — Design Versatility* — is available from any member of the Malleable Castings Council and from the Malleable Castings Council, Union Commerce Building, Cleveland 14, Ohio.

These companies are members of the



CONNECTICUT

Connecticut Malleable Castings Co., New Haven 6
Eastern Malleable Iron Co., Naugatuck
New Haven Malleable Iron Co., New Haven 4

DELAWARE

Eastern Malleable Iron Co., Wilmington 99

ILLINOIS

Central Fdry. Div., Gen. Motors, Danville
Chicago Malleable Castings Co., Chicago 43
Moline Malleable Iron Co., St. Charles
National Mall. and Steel Castings Co., Cicero 50
Peoria Malleable Castings Co., Peoria 1
Wagner Castings Company, Decatur

INDIANA

Link-Belt Company, Indianapolis 6
Muncie Malleable Foundry Co., Muncie
Terre Haute Mall. & Mfg. Corp., Terre Haute

MASSACHUSETTS

Belcher Malleable Iron Co., Easton

MICHIGAN

Albion Malleable Iron Co., Albion
Auto Specialties Mfg. Co., Saint Joseph
Cadillac Malleable Iron Co., Cadillac
Central Fdry. Div., Gen. Motors, Saginaw

MINNESOTA

Northern Malleable Iron Co., St. Paul 6

NEW HAMPSHIRE

Laconia Malleable Iron Co., Laconia

NEW JERSEY

Meeker Foundry Company, Newark 4

NEW YORK

Acme Steel & Mall. Iron Works, Buffalo 7
Frazer & Jones Company Division
Eastern Malleable Iron Co., Solvay
Oriskany Malleable Iron Co., Inc., Oriskany
Westmoreland Mall. Iron Co., Westmoreland

OHIO

American Malleable Castings Co., Marion
Canton Malleable Iron Co., Canton 5
Central Fdry. Div., Gen. Motors, Defiance
Dayton Mall. Iron Co., Ironton Div., Ironton
Dayton Mall. Iron Co., Ohio Mall. Div., Columbus 16
Maumee Malleable Castings Co., Toledo 5
National Mall. and Steel Castings Co., Cleveland 6

PENNSYLVANIA

Buck Iron Company, Inc., Philadelphia 22
Erie Malleable Iron Co., Erie
Lancaster Malleable Castings Co., Lancaster
Lehigh Foundries Company, Easton
Meadville Malleable Iron Co., Meadville
Pennsylvania Malleable Iron Corp., Lancaster

TEXAS

Texas Foundries, Inc., Lufkin

WEST VIRGINIA

West Virginia Mall. Iron Co., Point Pleasant

WISCONSIN

Badger Malleable & Mfg. Co., S. Milwaukee
Belle City Malleable Iron Co., Racine
Chain Belt Company, Milwaukee 1
Federal Malleable Company, West Allis 14
Kirsh Foundry Inc., Beaver Dam
Lakeside Malleable Castings Co., Racine
Milwaukee Malleable & Grey Iron Works, Milwaukee 46

Association News

New Officers Chosen For Houston Group



HOUSTON OFFICERS ELECTED—At a recent meeting officers were elected as follows: president—C. J. Stewart; first vice president—W. R. Stelzer, Jr.; second vice president—R. G. Stockton; treasurer—J. F. Boydston; secretary—A. Galada, Jr.; national director—Haylett O'Neill, Jr.; and alt. national director—J. F. Florian. Local directors are: C. N. Schwarz, R. W. Loomis, and W. C. Butler.

Grand Rapids Association Plans For 1959-60



GRAND RAPIDS COMMITTEEMEN—Shown at their planning meeting are the committeemen of the Grand Rapids Purchasing Agents Association: (left to right) John C. Neil, Haven Busch Co., standardization; Norman E. Dogger, Grand Rapids Paper Co., public relations; Ralph E. Scheifley, John Widdicomb Co., membership; John M. Vanderveen, Sackner Products, Inc., professional development; and Homer Barber, American Box Board Co., program chairman.

Florida P.A.'s Hold Three-day Seminar

The purchasing Agents Association of Florida held their third quarterly meeting at Clearwater Florida recently.

The meeting was a seminar held in conjunction with Florida State University, Tallahassee, Fla. The theme of the three-day meeting was, "Purchasing: A Function of Progressive Management."

Educational Program

W. L. Beckham and his education committee together with the University put together a program which was of real benefit to everyone who attended the various sessions.

The speakers and parts of the program were as follows: **Responsibilities of Purchasing**—M. B. Eubanks, director of purchasing and transportation, Riegel Textile Corp., Ware Shoals, S. C. **Current Trends That Will Have an Impact on Purchasing**—Dr. Neal Bowman, National Association of Manufacturers.

Value Buying—A. M. Kennedy, Jr., vice president purchasing and traffic, Westinghouse Electric Corp.

The Role of Industrial Arts in Modern Purchasing—Ivan Johnson, professor and head, Department of Arts Education, Florida State University.

Better Communications

The second morning was devoted to "Effective Purchasing Through Communications." This subject was covered by three members of the faculty of Florida State University.

Professor T. R. Lewis, Department of Speech, spoke on "Listening as a Dynamic Force in Communications"; Paul Stoakes, professor of English discussed, "The Art of Clear Writing," and Richard M. Baker, assistant professor of marketing, selected "Oral Communications" for his address to the group.

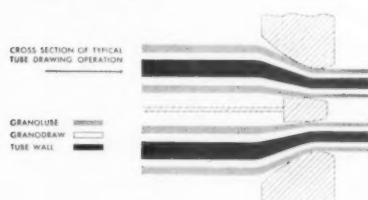
The last session of the very successful seminar was devoted to "The Psychology of the Open Mind in Purchasing". James C. Smith, instructor, Department of Psychology at the University was the speaker.



CHEMICAL CONVERSION COATINGS and their functions in facilitating the cold mechanical deformation of metals

By ARTHUR DAHL, Product Development Dept., AMCHEM PRODUCTS, INC.

When used to facilitate the cold mechanical deformation of metals (in drawing, extrusion, stamping, cold heading, necking, and upsetting operations) chemical conversion coatings in conjunction with suitable lubricants perform three important functions. One, they prevent metal-to-metal contact between work and tool. Two, they prevent galling and seizing. Three, they protect stock indefinitely, permitting the storage of in-process work at any stage of production, without danger of corrosion damage.



Characteristic of the tightly bound, highly absorptive, crystalline coating formed by the processes is the ability of the coating to retain lubricity throughout forming operations when treated with a suitable lubricant. This offers the following production advantages:

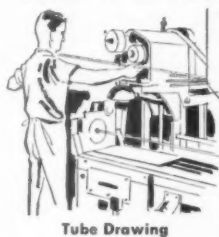
- Higher degree of reduction
- Greater speed of draw
- Longer tool life
- Fewer process anneals and pickling
- Finer surface finish
- Cleaner mills
- Easier inspection of finished product

Also of interest to production men is the exact duplication of coatings from batch to batch. And the processes are much simpler than other methods of coating metals—baths can be set up and running in less time than it takes to determine suitable coatings by other methods.

TYPES OF COATINGS AND THE METALS FOR WHICH THEY ARE DESIGNED

Zinc phosphate coatings for carbon steel. These coatings can be applied by either dip or spray systems.

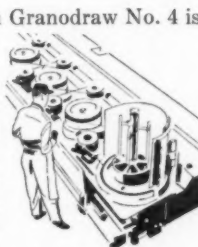
Dip. Amchem Granodraw No. 1 is typical of the dip process. The sequence includes precleaning, water rinse, pickling, water rinse, water rinse, Granodraw No. 1 solution, water rinse, and a hot neutralizing rinse. Surfaces



Tube Drawing

to be treated must be free of oil, grease, rust and scale. The above sequence insures that they will be. And when metal is free of rust and scale, the pickling bath and two succeeding water rinses can be omitted. In either case, a lubricant like Amchem Granolube or conventional lubricant must be applied prior to working the metal.

Spray. Amchem Granodraw No. 4 is an example of the spray process. It usually requires 5-stage equipment and includes the following steps: precleaning, water rinse, Granodraw No. 4 solution, water rinse, lubricant. After chemical



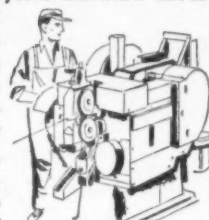
Wire Drawing

treatment, the work must be dried before forming.

Oxalate Coatings for the stainless steels and many of the high-nickel alloys. These coatings are applied only by immersion process, and usually in a 5-stage system which includes an acid pickling or depassivating bath, a water rinse, the Amchem Granodraw SS coating bath, a hot borax neutralizing rinse for wire stock, or a lubricating bath for tube stock. Since thorough activation of the metal surface is necessary to promote an adherent coating, the pickling and activating bath is an important stage in processing.

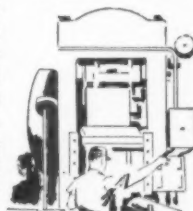
Fluoride-type coatings for zirconium and its alloys. Granodraw ZR is such a coating.

It is applied in an immersion process which includes pre-cleaning, water rinse, pickling, water rinse, Granodraw ZR solution, water rinse, drying or lubricating. It has been used primarily in the treatment of stock prior to wire drawing and tube drawing. Surfaces are cleaned of oil and grease by solvent degreasing or alkali cleaning. Pickling is required to provide a surface that is chemically and metallurgically receptive to the coating.



Cold Heading

Amorphous phosphate coatings for aluminum. This type of coating is now in the development stage. Laboratory and field tests are being conducted, results are being evaluated, and modifications in chemical make-up and process sequence are being made to meet requirements. Several field tests, however, have indicated that it will do the same job for aluminum processors as the other types of coatings have done for those working carbon steel, stainless steel, high-nickel alloy, and zirconium.



Impact Extrusion

For more information write us at Ambler.



AMCHEM PRODUCTS, INC. (Formerly American Chemical Paint Co.)

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Association News

Rochester Purchasing Agents Choose Conklin for President



ROCHESTER ASSN. OFFICERS—James Conklin, Toledo Scale Co. (seated second from left) was recently installed as president of the upstate association. Pictured with him are (seated left to right) R. A. Copeland, Archer Mfg. Co., Inc.; Mr. Conklin; S. W. Aman, General Motors Corp.; J. F. Doris, Schlegel Mfg. Co.; and Edward A. Galen, Eastman Kodak. Standing are: K. J. Baum, Labelon Tape Corp.; J. W. Averill, Stromberg-Carlson Co.; E. G. Fischer, Tobin Packing Co.; Warren Barton, Consolidated Electrodynamics Corp.; Charles Smail, Shuron Optical Co., Inc. and Donald S. Judd, American Brake Shoe Co.

Wilberg Elected to Head Alabama Association



NEWLY ELECTED OFFICERS of the Alabama Association. Seated, left to right: James B. Harrington, Birmingham Paper Co., first vice president; Clinton E. Wiberg, City of Birmingham, president; and Oscar M. Stagg, Jr., Birmingham Southern Railroad Co., second vice president. Standing: C. Russell Keister, Rust Engineering Co., treasurer; J. N. Day, Jr., Moore-Handley Hardware Co., national director; and Guy B. Cofield, Alabama Power Company, secretary.

Annual Election Held In Northern Calif.

The Purchasing Agents Association of Northern California elected officers and directors to take office for next year.

R. H. Chase, Shell Development Company was unanimously elected as president. Serving with him will be: C. R. Murray, Southern Pacific Company, as first vice president; J. D. Hahn, University of California Medical Center, second vice president; A. B. Marshall, Ducommun Metals & Supply Co., secretary; and C. G. Hatcher, Moore Dry Dock Co., treasurer.

The national director will be E. M. Laine, Shields, Harper & Co. Other directors for the coming year are: G. A. Cumming, State of California; Duncan Gregg, Kaiser Aluminum & Chemical Corp.; H. D. Hartz, Schlage Lock Company; J. S. Millar, Sperry Gyroscope Co., Don Tenney, Crown Zellerbach Corp.; and B. A. Wilson, Fibre-board Paper Products Corp.

Standardization Is Theme At Buffalo Meeting

The June meeting of the Buffalo Association of Purchasing Agents was under the direction of the Standardization Committee headed by William F. Burk.

The committee showed the membership what manufacturers are doing to promote standardization and other value analysis techniques which benefit both buyers and sellers.

A panel of representatives of industry discussed the subject. An added feature was a showing of the film, "A Talk with Mr. D."

Six new applicants received the necessary vote of acceptance and have become full members. The new members are: Richard J. Wujek, Roberts-Gordon Appliance Corp.; William R. Chandler, Unit Parts Corporation; Harry L. Grabenstatter, Quackenbush Co., Inc.; Robert J. Wagner, Emil Von Dungen of Buffalo, Inc.; William M. Haswell, General Abrasive Co., Inc. and Joseph F. Turner, Continental Can Company, Inc.

For More Information Write No. 262 on Inquiry Card—Page 32→
PURCHASING



**A FINE BALANCE OF AUTOMATION
AND CRAFTSMANSHIP SHAPES
HYATT'S SUPERIORITY!**

Traditional skill and craftsmanship aided by modern electronic devices, accurate gauging and rigid quality control has made HYATT the recognized leader in cylindrical bearings. No matter how great the quantity, the same high quality is consistently maintained. *For maximum performance per bearing dollar, insist on . . .*

HYATT **HY-ROLL BEARINGS**
FOR MODERN INDUSTRY

HYATT BEARINGS DIVISION • GENERAL MOTORS CORPORATION • HARRISON, NEW JERSEY

Available through United Motors System and its Independent Bearing Distributors

NO BEARINGS carry radial loads like cylindrical bearings . . .
and **NOBODY** knows them like **HYATT**

REPUBLIC STAINLESS STEEL PROVIDES UNIFORM QUALITY



Here's a good example, illustrating how uniform quality pays off in superior products. The material is Republic ENDURO® Stainless Steel Strip—used to fabricate steel parts around heating elements of electric ranges. This application requires a combination of special characteristics.

Stainless meets these requirements by offering a combination of advantages unobtainable in any other commercial metal. It provides exceptionally high resistance to heat and corrosion; doesn't tarnish, is easy to clean and keep clean; has no applied surface to chip, peel, or wear away.

Tuttle and Kift Division, Ferro Corporation, Chicago, Illinois, manufacture a large share of all assembled electric range heating elements produced. In doing so,

they find they can depend on Republic Stainless Steel to meet the rigorous standards they demand. Most significant of all, they find the quality is consistent. They also like Republic's excellent metallurgical and delivery services.

Fabrication of heating elements for electric ranges is but one of many applications where the uniformly high quality of Republic Stainless Steel produces excellent results. Use this aristocrat of metals to give your product prestige, eye-appeal, buy-appeal, and built-in sales advantages never before experienced.

It will pay you to get full information on Republic Stainless Steel. Contact your local steel service center, your Republic sales office, or mail the convenient coupon.

FOR SUPERIOR FABRICATION



▲ **CONSISTENT PAINT-HOLDING CAPACITY** makes Republic Electro Paintlok® ideal for water cooler housings, or for exterior panels of ranges, freezers, dryers, washers, air-conditioners and other major appliances and cabinets for home, commercial and industrial applications. Produced by electro-galvanizing and a chemical treatment process for paint adherence. Electro Paintlok Sheets are shipped from the mill in prime condition for painting.



▲ **SUPERIOR FABRICATION FOR OUTDOOR REQUIREMENTS** is a characteristic of Republic Galvannealed Sheets. Experience proves its durability, even when only one side is painted. Hot dip galvanizing plus special heat treatment gives Galvannealed its weather-resistant qualities plus a surface exceptionally well suited to take and hold paint. Forming operations fail to damage these outstanding surface characteristics. Flaking or peeling is practically eliminated.



▲ **UNIFORMLY TIGHT ZINC COATING** on Republic Continuous Galvanized Sheets won't crack, flake, or peel even under the most severe forming operations. Better corrosion resistance is another point that makes Republic your best choice for many fabricating requirements.

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*World's Widest Range
of Standard Steels and
Steel Products*

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- ☐ Stainless Steel ☐ Electro Paintlok Sheets
☐ Galvannealed Sheets ☐ Continuous Galvanized Sheets

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Company _____

Address _____

City _____ Zone _____ State _____

Why **WRM** PHOSPHOR BRONZE

**Delivers
Uniform
Results—
SHIPMENT
AFTER
SHIPMENT**



Waterbury's rigid standard of Quality Control produces consistent physical characteristics.

Raw materials are carefully selected, combined and processed under strict metallurgical lab control. Grain size and structure, physical and electrical properties are closely duplicated in order after order, shipment after shipment. This continuous quality protects your production... gives you consistent success in your application.

Remember, too, that Waterbury's 52 years of metallurgical experience is available to help you on specific problems.

For prompt delivery of quality metal, order Waterbury Rolling Mills' Phosphor Bronze.

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Also WRM
Nickel Silver
And Other
Copper
Alloys

WR-17

For More Information Write No. 264 on Inquiry Card—Page 32

Association News

Central Iowa Awards Memorial Scholarship

A \$1000 scholarship was granted to Garry Rollins, son of the late Kaye Rollins by the Purchasing Agents Association of Central Iowa.



Alvin Rempp, Dun-Lap Mfg. Co., and association vice president is shown presenting the check to Garry Rollins. Looking on is Donald R. Foster, Midwest Metal Stamping Company.

Mr. Rollins was one of the founders and charter members of the association and the scholarship to his son was a memorial grant in memory of Mr. Rollins.

The grant was made available from the Educational Fund of the association, a fund which has been built up as a result of the Products Show held biannually by the association.

Buyers Group Elects New Officers

Insulators of Electrical Conductors—Buyers Group, National Association of Purchasing Agents at a recent meeting elected the following: Abraham Kraus, Hatfield Wire & Cable Div., Continental Copper & Steel Industries, Hillside, N. J. will serve as chairman; Elmer Johnson, American Steel & Wire Div., United States Steel Corp. will be secretary; and John R. Garey, William Brand & Co. Inc., Williamantic, Conn., treasurer.

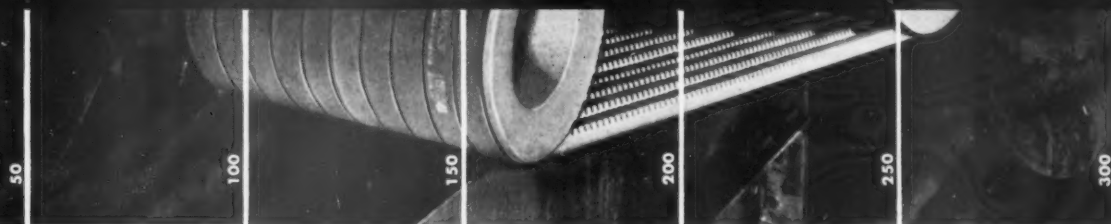
For More Information Write No. 265 on Inquiry Card—Page 32 →

PURCHASING

New HP Ratings on Dayton Cog-Belts® provide important savings in Drive Space, Weight and Cost

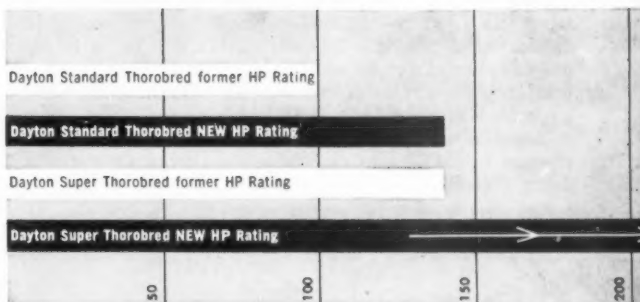
Dayton Cog-Belt former HP Rating

Dayton Cog-Belt NEW HP Rating



Dayton Cog-Belt Horsepower Capacity increased to 200-300% of previous Standard Belt Ratings . . . using existing industry-standard sheaves

- Two Cog-Belts do the work of as many as 6 previous standard V-Belts.
- No special sheaves required . . . use existing sheave stocks on Cog-Belt drives.
- Job-proven Dayton quality is backed by the experience of many actual drive applications throughout industry.
- New ratings approved only after proven by most rigorous research standards.
- Your present sheave inventories cover a much greater range of horsepower capacities.
- Less belts per drive mean less drive space, less drive weight.



Thorobred and Super-Thorobred V-Belts also newly rated

- New Thorobred ratings are now 140% of previous standard belt ratings.
- New Super-Thorobred ratings are now 170-220% of previous standard belt ratings.

Write for new brochure showing how designers can calculate Dayton Cog-Belt drives by referring to existing drive selection tables in Dayton's #208-B Handbook of V-Belt Drive Design. See "Belting" in the yellow pages of your telephone directory for the name of your nearest Dayton Distributor, or write Dayton Industrial Products Company, Division of The Dayton Rubber Company, Dayton 1, Ohio.

Utilize over 30 years of time proven Dayton quality, research and engineering in your V-Belt drive design.

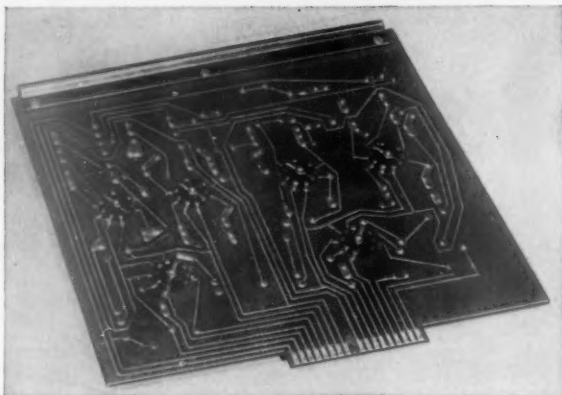


Dayton Industrial Products Co.

© D. R. Co. 1959

A Division of The Dayton Rubber Company, Melrose Park, Illinois

CD F PLASTICS AND FIBRE



Heart of the best printed circuits—

CDF Di-Clad® LAMINATES

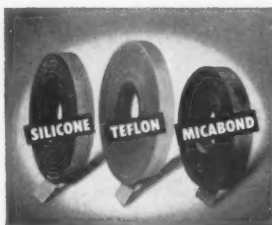
Printed-circuit dependability begins at the base, and that's where CDF excels. Only CDF offers the combination of Teflon® resin and glass fabric cloth for use under sustained temperatures of 180°C. In addition, CDF offers a full range of Di-Clad laminates to meet every known demand of printed circuitry. High foil-bond strengths withstand soldering heats, reduce assembly rejects. Full line of Di-Clad grades — glass fabric and paper-base — with Teflon®, epoxy, and phenolic resins. Assembly costs go down when the job is done on CDF Di-Clads! Write for CDF Di-Clad Folder DC-58.

*duPont trademark for its tetrafluoroethylene resin

CDF PRODUCTS OF TEFLON

CDF produces an unequalled range of electromechanical parts of Teflon® — such as small- and large-diameter thin-wall tubing, glass-fabric laminates, flexible insulating tapes, sheets, rods, tubes, and finished parts. Now also available: cementable Teflon in supported and unsupported forms; can be cemented to itself and to most other materials with commercial adhesives. If you have a potential use for a product made from unsupported or reinforced Teflon — from tapes to high-heat-resistant printed-circuit laminates — your CDF sales engineer is the man to call. Meanwhile, write for the new CDF Teflon Folders.

*duPont trademark for its tetrafluoroethylene resin



CDF HIGH-HEAT ELECTRICAL TAPES

Flexible insulating tapes for hand or automatic winding, made of glass-supported silicone rubber, silicone varnish, Micabond, with and without backings; and unsupported and glass-supported Teflon®. Color identification — CDF tapes of Teflon are made in the standard identifying colors. Call your CDF sales engineer, or write for test samples.

*duPont trademark for its tetrafluoroethylene resin



DIAMOND VULCANIZED® FIBRE

keeps costs down

Known for over sixty years as the standard of quality in fibre, Diamond® Vulcanized Fibre is made in many grades (bone, fish-paper, trunk, commercial, built-up) and is available in sheets, rods, tubes, strips, rolls, fabricated parts, and formed specialties. Write for Catalog DVF-58.

LOW-COST VULCOID is Resin-impregnated Vulcanized Fibre. Vulcoid (made only by CDF) is an intermediate insulation material. It combines the desirable arc-resistance and mechanical properties of vulcanized fibre with many of the good qualities of a phenolic laminate. UL-approved as Class A insulation in electrical equipment. Bearing applications requiring high precision have been successful with Vulcoid. Write for Bulletin V-58.



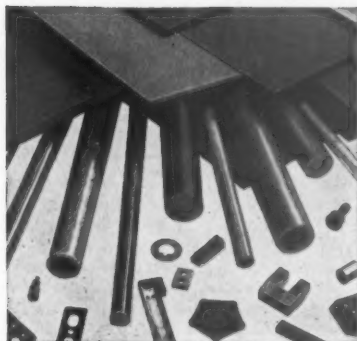
CDF CELORON® MOLDED PRODUCTS

Celoron is a molded-macerated and/or combination laminated base bonded with phenolic resins. High strength, long life, and low cost are the characteristics of molded electrical or mechanical parts made from CDF Celoron®. Its good electrical properties make Celoron an ideal molded insulator, while its high mechanical strength makes it an excellent material for gears, couplings, intricate loom parts, etc. Write for CDF Catalog C-58, or contact your nearest CDF sales engineer.

PURCHASING NEWS



CDF DILECTO® LAMINATED PLASTICS



for electrical and mechanical applications

DILECTO®, made in scores of grades, means high-quality laminated plastics made for rigorous duty in electrical, electronic, and mechanical equipment. Characteristics vary with the grade, so get the expert assistance of your CDF sales engineer.

RESINS AVAILABLE IN DILECTO:

Phenolic
Heat-resistant Phenolic
Silicone

Epoxy
Melamine

Polyester
Teflon*

BASES FOR DILECTO:

Glass Fabric
Nylon Fabric
Asbestos Fabric
Cotton Fabric

Glass Mat
Felted Asbestos
Non-woven Cotton Mat
Paper (either cellulose or asbestos)

CDF gives fast technical and delivery service on sheets, tubes, rods, or complete fabricated parts of Dilecto plastics. Write for Catalog D-55-C.

*duPont trademark for its tetrafluoroethylene resin

For a better motor or generator —



CDF MICABOND® INSULATING PARTS

CDF mica V-rings and slot liners insulate America's best-selling motors and generators. Finest-quality mica splittings insure highest heat-resistance and insulation under severe operating conditions.

Forms of Micabond® available: Sheets; Tubing; Tapes (with backings of cotton, silk, paper, woven glass, and Mylar® polyester film); Fabricated Parts of various shapes such as Mica segments. CDF supplies and fabricates Micabond to your strictest specifications — on time and at low cost. Call your CDF sales engineer or write for samples of Micabond and Catalog M-58.

†duPont trademark



PLASTICS FABRICATION BY CDF

SAVES YOU TIME, MONEY, WORRY

Let CDF's well-equipped machine shops assume the complete responsibility for delivery of your fabricated parts as specified and on time. No time is lost at CDF between raw-material production and final fabrication. When you let CDF do it for you, there's no problem of shortages, rejects, waste. Undivided responsibility pays off for you!

THERE'S A CDF SALES OFFICE NEAR YOU

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BIRMINGHAM 6, ALA. VEron 3-5713
110 95th Street, N.
BOSTON GRanite 2-2150
1245 Hancock St., Quincy 69, Mass.
BUFFALO 3, N.Y. WASHINGTON 3929
495 Ellicott Square Building
CHICAGO 11, ILL. DElaware 7-6266
1291 Palmolive Building
CLEVELAND 14, OHIO CHerry 1-5220
550 Leader Building
DAYTON 3, OHIO KEmore 3114
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DETROIT 35, MICH. BRoadway 3-0447
201 Offcenter Bldg.
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HARTFORD Hartford-Jackson 9-0397
15 Harding St., Wethersfield 9, Conn.
HOUSTON 27, TEXAS JACKson 3-9254
3302 Mercer Street
INDIANAPOLIS 5, IND. WALnut 5-9803
709 East 38th St.
KANSAS CITY 11, MO. LOgan 1-6014
406 West 34th St.
LOS ANGELES 11, CALIF.
2400 Santa Fe Ave. Ludlow 2-6334
MILWAUKEE 19, WIS. LINcoln 1-7660
6108 W. Lincoln Ave.

MINNEAPOLIS 2, MINN. FEderal
610 Plymouth Bldg. 3-6666 -3388
NEW YORK SCarsdale 5-1600
2 Overhill Rd., Scarsdale, N.Y.
OMAHA 3, NEBRASKA REgent 9110
116 North 40th St.
ORLANDO, FLA. CHerry 1-3774
2418 Rosedale St.
PHILADELPHIA Norristown-
Bridgeport, Pa. BRoadway 5-0800
PHOENIX, ARIZONA ALpine 8-7893
P. O. Box 1587
PITTSBURGH 21, PA. CHurchill
309 Shields Bldg. 1-0969
ST. LOUIS 10, MO. MIssion 5-2253
1246 Hampton Ave.
SPARTANBURG, S. C. SPartanburg
834 Hayne Street 3-6397

TULSA, OKLAHOMA LUther 7-6189
204 S. Cheyenne St.

Pacific Coast Representatives MARWOOD LIMITED

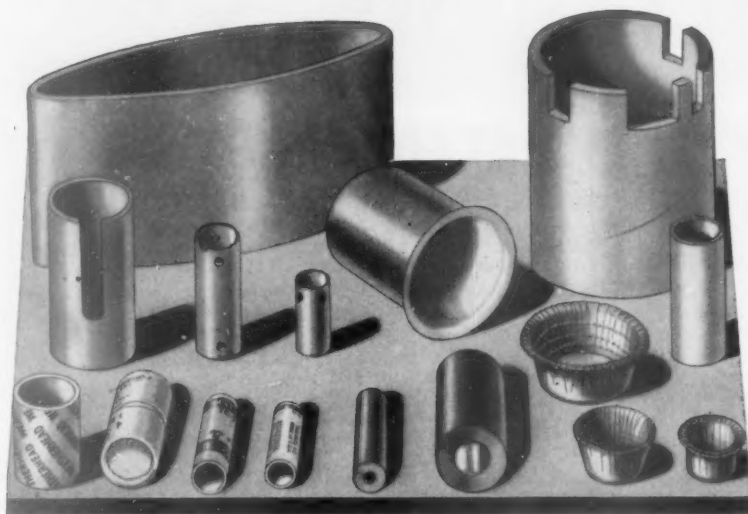
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357 Ninth Street HEMlock 1-7893
SEATTLE 4, WASHINGTON
1714 First Ave. S. MAin 3-4747
PORTLAND 4, OREGON CApital 3-5123
209 S. W. First Ave.
LOS ANGELES 13, CALIF.
320 East 3rd Street MADison 8-3241
In Canada
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CANADA, LTD.
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CONTINENTAL-DIAMOND FIBRE

A SUBSIDIARY OF THE ~~Bush~~ COMPANY • NEWARK 41, DELAWARE

SPECIAL INDUSTRIAL USES



OF CLEVELAND TUBING

Shown here are a few examples of special applications of Cleveland tubing.

These illustrate formed tubing: — used for cushioning a large automotive part . . . for protection of an ammunition component . . . of various items printed and plain used in radio and TV . . . curled and disced for packaging a hearing aid battery . . . for protection of threaded parts.

Cleveland tubing made of high grade chipboard or kraft, and in combination with acetate, foil or other materials, can be fabricated to your particular requirement.

Regardless of how intricate your problem may seem, let us help you solve it. No obligation, of course.

Why pay more? For quality products . . .
call CLEVELAND!

THE CLEVELAND CONTAINER COMPANY

Plants and Sales Offices:
Cleveland 6201 BARBERTON AVE. • CLEVELAND 2, OHIO
Detroit
Chicago
Memphis
Los Angeles
Plymouth, Wis.
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ALL-FIBRE CANS • COMBINATION METAL AND PAPER CANS
SPIRALLY WOUND TUBES AND CORES FOR ALL PURPOSES

CLEVELAND CONTAINER CANADA, LIMITED

Plants & Sales Offices: Toronto & Prescott, Ont. • Sales Office: Montreal

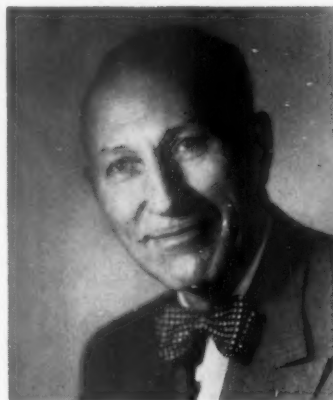
Sales Offices:
New York City
Washington, D.C.
Rochester, N. Y.
West Hartford, Conn.
Abrasive Division at Cleveland

For More Information Write No. 267 on Inquiry Card—Page 52

Association News



NEW PRESIDENT: Edward B. Winslow, Jr., purchasing agent at the General Electric Company, Providence Base Plant was recently elected president of the Rhode Island Purchasing Agents Association. Leo J. Bass, Newman-Crosby Steel Corp., and Thomas L. Battle, Improved Seamless Wire Co. will serve with Mr. Winslow as vice presidents.



CANADIAN ASSOCIATION: Hector D. Wright, general purchasing agent, The E. B. Eddy Company, Hull, Quebec was elected president of the Canadian Association of Purchasing Agents at the annual meeting in Banff, Alberta. Elected to serve with him as vice president was A. R. Oliver, general purchasing agent, The Steel Company of Canada, Limited, Hamilton, Ontario.

1960 Convention Hosts Elect Officers

Charles S. Perkins, manager of purchases for Union Oil Company of California was recently installed as president of the Purchasing Agents Association of

(Please turn to page 178)

For More Information Write No. 268
on Inquiry Card—Page 32 →

PURCHASING



**Who Buys
Roebbling Upholstery
Spring Wire
After You Do?**

The end-user can hardly be expected to know a great deal about Roebbling helical spring wire, border and brace wire,

zigzag and no-sag wire, wire for automatic machines, lacing wire...

Thus, the qualities of uniformity, temper, tensile strength, size and finish that are yours whenever you use Roebbling Spring Wire mean long life, resiliency under constant use (and abuse) where it counts the most...to those who buy Roebbling Upholstery Spring Wire after you do.

For further information on the wide

range of types, the consistent superiority and availability of these and other Roebbling wire products, write Wire and Cold Rolled Steel Products Division, John A. Roebbling's Sons Corporation, Trenton 2, New Jersey.

Roebbling...Your Product is Better for it

ROEBBLING

Branch Offices in Principal Cities

Subsidiary of The Colorado Fuel and Iron Corporation



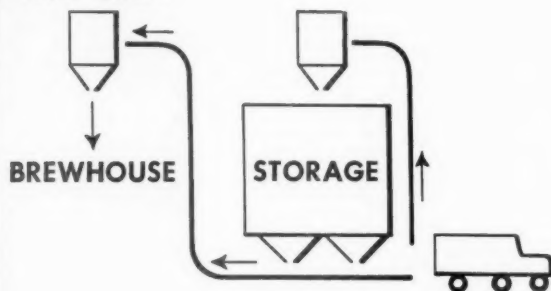
The Arithmetic of Materials Handling



FULLER AIRVEYOR pneumatic system pulls corn grits from discharge of Airveyor bulk transport trailer to storage silos to weigh hoppers.

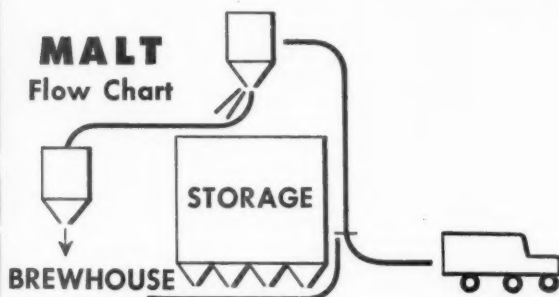
GRITS

Flow Chart



MALT

Flow Chart



PIELS MODERNIZES WITH AIRVEYOR

**saves man-hours,
materials, money**

When Piel Bros., Brooklyn, N. Y., took over the Staten Island plant of another brewery, they replaced complicated, inefficient mechanical conveyors with a fast, efficient Fuller pneumatic Airveyor® system—to handle tons of malt and corn grits.

Here's what the new Fuller Airveyor system has accomplished:

ELIMINATION OF POSSIBLE CONTAMINATION in the old mechanical system. Totally-enclosed Fuller Airveyors prevent material loss through spillage and eliminate the problem of possible infestation. 100% visible dust retention contributes to sanitary working conditions.

MAJOR LABOR-SAVING through fully automatic control of Airveyors. One man

—at pushbutton panel—handles unloading of Airveyor bulk transport trailers, conveying to silos, and directs weighing and proportioning operations.

NEGLECTIBLE MAINTENANCE, because Airveyors have few moving parts and are self cleaning! Downtime for cleaning mechanical equipment previously required eight man hours a week.

If you are now handling dry, granular materials, it will pay you to look into Fuller pneumatic conveying systems. Fuller systems are engineered specifically for your particular application. They bend around corners, run up or down, through walls and floors, almost any distance—even underground. Write or phone today outlining your problem. Fuller will gladly furnish additional information with appropriate recommendations.



THE ULTIMATE in automation—Fuller Airveyor offers simplified, precision control from this remote control "pushbutton" panel.



A-262
4909

Fuller

pioneers in harnessing AIR

FULLER COMPANY

170 Bridge St., Catasauqua, Pa.

Subsidiary of General American Transportation Corporation

Birmingham • Chicago • Kansas City • Los Angeles • New York • San Francisco • Seattle



Why it pays to standardize on **GATOR HIDE®** converting papers by International Paper

MANY FACTORS have made Gator Hide the world's leading kraft converting paper.

1. Service. International Paper's unsurpassed technical staff and research facilities are always at your service. We determine your exact *needs*, then tailor a paper to exacting specifications to meet your specific end-use requirements.

2. Complete line. International Paper makes converting papers for: multiwall sacks, coating, gumming, twisting, laminating, asphaltting, coin-

wrap, saturating, tire wrap—you name it!

3. Quality. One company, International Paper, controls quality from forest to finished product. Every Gator Hide converting paper is made from 100% virgin sulphate pulp for maximum strength, appearance and printability.

4. Dependability. Gator Hide converting papers are made in a *network* of plants—assuring you of a constant source of supply and dependable on-time delivery.



Southern Kraft Division **INTERNATIONAL PAPER** New York 17, N. Y.

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AUGUST 17, 1959

For More Information Write No. 270 on Inquiry Card—Page 32



Now—two kinds of CAMPBELL SLING CHAINS

.....FACTORY-MADE
.....CUSTOMIZED

Campbell offers Factory-Made and Customized Sling Chains . . . both with the same strength and working load limits!

CAMPBELL Factory-Made SLING CHAINS

Available in all styles from Campbell's three strategically located plants. In three grades: Cam-Alloy, Wrought Iron, High Test Steel. Campbell Certificates of Test issued for your safety. Write today for Catalog S-558.

CAMPBELL Customized SLING CHAINS

You can order slings assembled by Campbell distributors or at Campbell factories and warehouses from pre-tested components. Or you can assemble slings right on the job. In single or double types, Alloy grade. Certificates of Test issued for complete assemblies or components. Write today for Catalog CSA-1.

**CAMPBELL
CHAIN**

CAMPBELL CHAIN Company

FACTORIES: York, Pa.; West Burlington, Iowa; Alvarado, Calif.

WAREHOUSES: E. Cambridge, Mass.; Seattle, Wash.; Portland, Ore.;

Atlanta, Ga.; Dallas, Texas; Chicago, Ill.; Los Angeles, Calif.

Association News

(Continued from page 174)

Los Angeles, hosts for the 1960 N.A.P.A. convention.

Elected to serve with him were the following officers and directors: first vice president, William Broker, Gough Industries, Inc.; second vice president, W. O. Hokanson, Noland Paper Company, Inc.; secretary, Harlan Eastman, Beckman Instruments, Inc.

Directors of the association include: Rex C. Hensel, Shell Oil Company; Victor Quam, County of Los Angeles; A. R. Hooker, Jr., The Flintkote Company and C. R. Raftery, North American Aviation, Inc.

Frank T. Henry, Arden Farms Co., was elected national director.

Little Rock P.A.'s Elect New Officers

The Little Rock Association of Purchasing Agents recently held its annual election of officers. Clifford Young, Malvern Brick & Tile Co. was elected president.



Outgoing president of the Little Rock Association, J. K. Chambers, confers with the new president, Clifford Young.

The following officers will serve with him: Kenneth R. Crain, Reynolds Metals Co., first vice president; Doyal E. Scott, International Paper Co., second vice-president; Henry C. Bragg, Minnesota Mining & Mfg. Co., secretary; and J. W. Washburn, Jr., McCoy-Couch Furniture Co., treasurer.

J. K. Chambers, Aluminum Co. of America will be national director. Other directors are: Hugh McMillan, Arkansas Foundry Co., and Lou Griffin, Parts Warehouse, Inc.

For More Information Write No. 271
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What's your company's shipping problem? Hard-to-pack contents? Fragile contents? High container costs? Fastening failures? Failure due to moisture?

What?

A Bostitch Economy Man is a container fastening expert. He helps solve shipping problems for companies of all kinds.

After he's checked your shipping room, he's likely to suggest savings in time, labor and materials.

These savings are frequently substantial. They're available to you—through the selection of the most appropriate Bostitch staplers and staples for your shipping room. And the Bostitch Economy Man will work that out.

Why not have the Economy Man called in to check your container fastening methods? There are over 300 of them working out of 123 U. S. and Canadian cities. He's listed under "Bostitch" in the phone book.

Fasten it better and faster with

BOSTITCH®

STAPLERS AND STAPLES

728 BRIGGS DRIVE, EAST GREENWICH, RHODE ISLAND



EXCELLENT BASE FOR PROFITS

This ninety-six pound casting was made for the National Cash Register Co. of Nodulite®, Hamilton Foundry's ductile iron. The casting forms the base for the new Post-Tronic Accounting Machine. It measures 37½" by 23½" with sections varying from ¼" to 1½". Ductile iron was chosen for this part because of its ductility, dimensional stability, rigidity, and machinability.

Sharp pencil buyers know that the *ultimate* cost of a casting rather than the purchase price is most important to the cost of the end product. Dimensional accuracy, uniform machinability, fine surface finish, low rejects and delivery of orders on schedule result in castings at lowest ultimate cost and insure your reputation for product quality.

When new and unusual design problems arise in the selection of metal and the casting of parts, you will find that the skill and integrity of your foundry is your best insurance that specifications—and delivery schedules—will be met.

GRAY IRON • ALLOYED IRON • MEEHANITE® • DUCTILE (NODULAR) IRON • NI-RESIST • DUCTILE NI-RESIST • NI-HARD



HAMILTON FOUNDRY INC.

1551 LINCOLN AVENUE • HAMILTON, OHIO • TWInbrook 5-7491
For More Information Write No. 273 on Inquiry Card—Page 32

Association News

Georgia P.A.'s Hear Psychologist

Dr. Edward H. Loveland of Georgia Tech's Psychology Department recently spoke at a regular meeting of the Purchasing Agents Association of Georgia. His subject was, "Psychology in Industry."

The Georgia purchasing agents were told to keep in mind "organism is ourselves, stimulus is the question and behaviour is reaction to the question."

In working with industrial management, Dr. Loveland stresses that recognition must always be given to people. Purchasing agents, in particular, should help those in their departments to make decisions, to have the right attitude concerning off job problems and be understanding when errors are made.

In summarizing, Dr. Loveland emphasized the importance of communication and said that often-times our methods of communicating fall short of the mark.

N.A.P.A. Appointments

General Chairman Harold A. Berry of the National Committee for Professional Development has made the following appointments:

District No. 2—Vice Chairman: Whittier B. Brown, Jr., U. S. Steel Corporation, Oil Well Supply Division, Garland, Texas.

District No. 9—Vice Chairman: Herbert A. Hamilton, Jr., General Electric Company, West Lynn, Mass.

Project Committee for Development of a "Career" Booklet: E. F. Andrews, Allegheny Ludlum Steel Corp., Pittsburgh, Pa.,

Project Committee on Standards for Vendor Evaluation:

C. B. Adams, General Electric Company, New York, N.Y., chairman; Burton G. Lowe, The Risdon Mfg. Co., Naugatuck, Conn.; Donald H. Lyons, Johns-Manville Corp., New York, N.Y.; William H. Old, The Babcock & Wilcox Company, New York, N.Y.

For More Information Write No. 274
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PURCHASING



Quality Control—L. Branzburg, (left), Walde's Director of Quality Control, watches S. Suparman, (center), Chief Test Engineer at Bulova R&D Laboratories, Inc., set up "Spin Rig" to test Truarc ring's holding power up to 140,000 rpm.



High production—3000 precision rings a minute are stamped out on new 1000 spm Bliss press... one of the many modern precision machine tools used to manufacture Truarc retaining rings.



Production aids—new magazine-fed Truarc Ring-Jector speeds ring applications, reduces assembly costs. Rapid loading with Truarc Rol-Pak stacked rings... another Walde's exclusive.



Complete technical data.



Assured delivery—Walde's metal inventory is enough for **five months'** full production. In addition, Truarc rings are nationally distributed from 90 stocking points.



Design assistance—on Mighty-Mite Jeep transmission assembly which incorporates 2 Truarc Series 5107 Interlocking Rings. Ned Salmon, Truarc Sales Engineer, at left, talks with Fred C. Schwartz, William A. Heater, and Earl J. King, Jr., Project Development Engineers of New Process Gear Div., Chrysler Corp.

PURCHASING VIEWPOINT: Reducing the end cost of your company's product is a basic objective behind any changeover to a new supplier or component. This is precisely what Truarc retaining rings have accomplished for many firms. We offer not only the widest line of rings, but also design and production aid to help you reduce costs. Ask for our Catalog RR 10-58.

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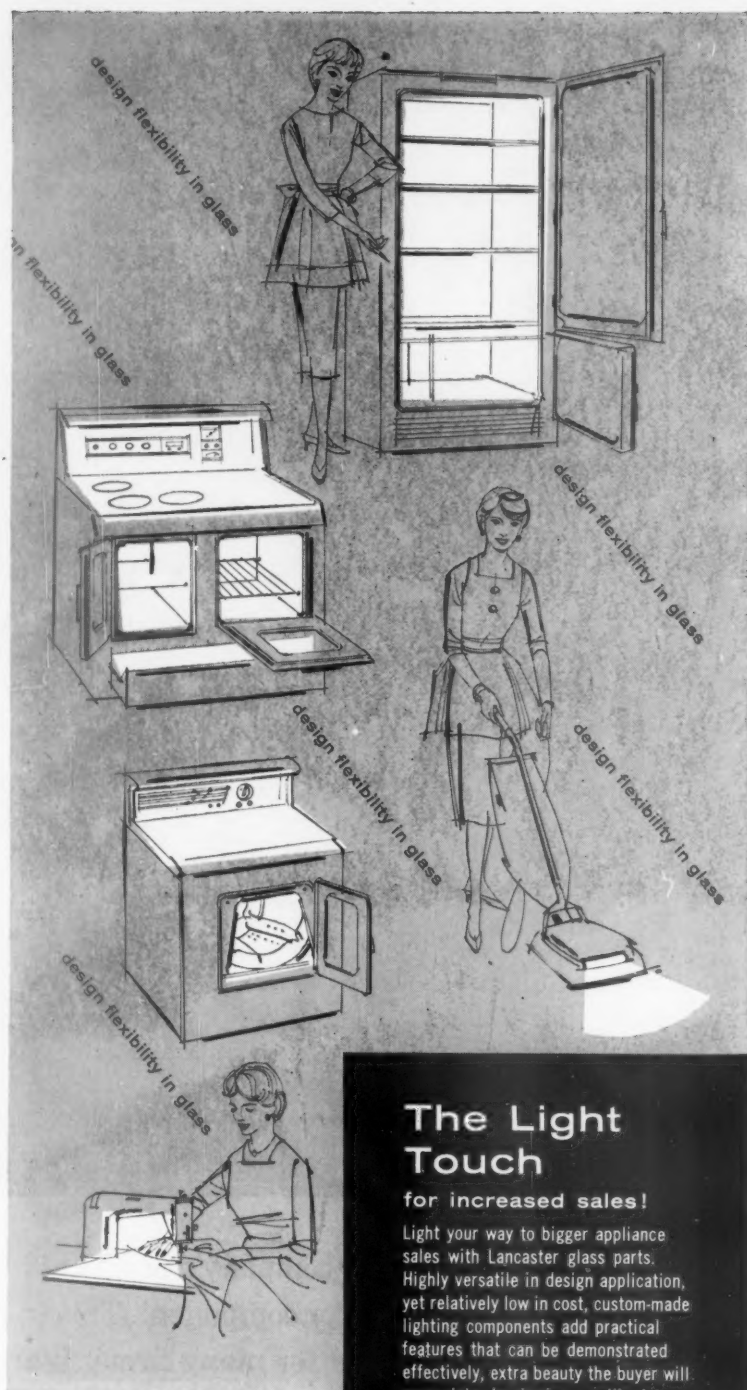


WALDES
TRUARC® RETAINING RINGS

WALDES KOHINOOR, INC., 47-16 Austel Place, Long Island City 1, N. Y.

TRUARC RETAINING RINGS... THE ENGINEERED FASTENING METHOD FOR REDUCING MATERIAL, MACHINING AND ASSEMBLY COSTS

© 1959 WALDES KOHINOOR, INC.



The Light Touch

for increased sales!

Light your way to bigger appliance sales with Lancaster glass parts. Highly versatile in design application, yet relatively low in cost, custom-made lighting components add practical features that can be demonstrated effectively, extra beauty the buyer will appreciate. In short, you will win friends and influence prospects at the vital point-of-sale.

Our lighting engineers can help you create new product applications, assist you with special assembly, optical or engineering problems. Put this expert knowledge to work for you, write Lancaster Glass Corporation, Lancaster, Ohio, or call OLive 3-0311.



For More Information Write No. 275 on Inquiry Card—Page 32

News

IMC to Hold Annual Purchasing Meetings

The success of a company-wide purchasing conference, held recently by International Minerals & Chemical Corporation, has resulted in the announcement that similar conferences will be run annually.

The week-long meeting, at the company's Skokie, Ill., headquarters, brought together for the first time purchasing agents and buyers from field offices throughout the country. C. F. Teeple, director of purchases, said that future meetings will be rotated among major company installations.

The theme of the 1959 conference was "Purchasing for Profit." It pointed up the areas of buyers' responsibility and provided a forum for the exchange of ideas and information.

Executives in the transportation, legal, operating, mining, and financial departments described areas in which they could cooperate with purchasing. A representative of the construction company that built IMC's administrative and research center told how his firm negotiates construction contracts.

Teeple suggested three principle lines of action for the P.A.'s at the meeting: (1) Sell purchasing at the local level to local managements; (2) Look for ways to integrate materials management; and (3) Concentrate time and effort in those areas where potential savings are highest.

New Edition Issued Of 'Maintenance Hints'

A revised edition of the book *Maintenance Hints* has been issued by Westinghouse Electric Corporation.

The new edition offers material that was not included in the earlier edition. It is dedicated to the better understanding of modern preventive maintenance of electrical equipment.

The book costs \$2 per copy. It can be obtained from Westinghouse, Pittsburgh, Pa.

For More Information Write No. 276 on Inquiry Card—Page 32 →

PURCHASING



Using this microphotometer, Jessop can detect and measure the per cent of even trace elements in a sample of specialty steel.

"How Jessop reads your specialty steels!"

—C. M. Carlisle, DIRECTOR OF ANALYTICAL CHEMISTRY

"If you're ever near the Jessop plant, stop in and ask for a tour through our chemical laboratories.

"There you'll see how Jessop makes certain you get the exact per cent of alloying elements specified for your specialty steel.

"For example, you'll see a *microphotometer* — that's what I'm peering at so intently in the above photograph!

"I'm studying a film showing the spectrum of a sample of steel from Jessop's No. 2 electric arc furnace. Each chemical element in this specialty steel appears as a distinct line. By reading these lines, I can detect even minute *traces* of elements and after some simple calculations, determine the per cent of each."

This modern chemical laboratory is one more reason why you get your specialty steel tailor-made to your order . . . and you get it on time. **Specify Jessop . . . and then relax!**

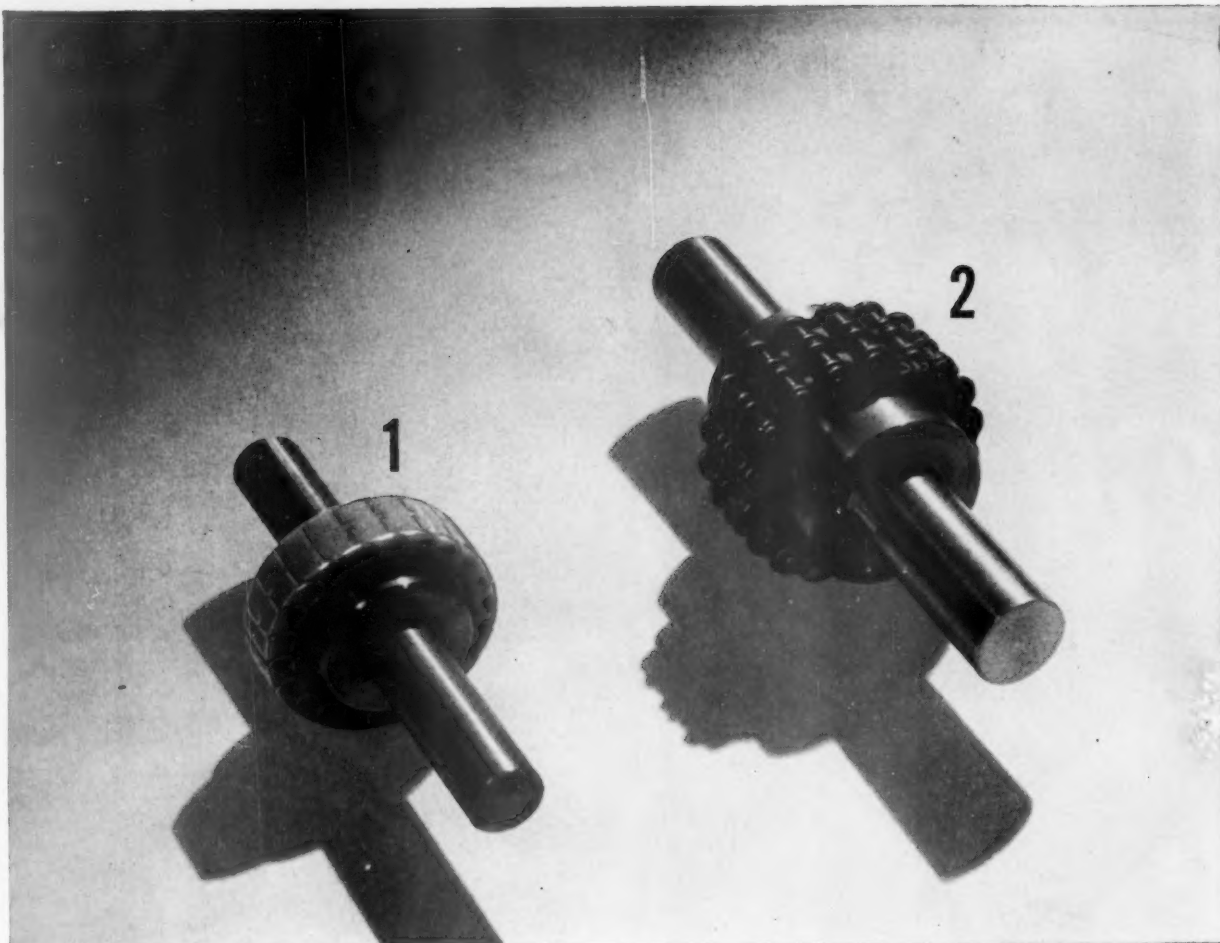
JESSOP
STEEL COMPANY
Washington, Pennsylvania

VMA 6719

Subsidiary Companies:

Green River Steel Corporation, Owensboro, Kentucky • Jessop Steel International Corporation, New York City
Jessop Steel of Canada, Ltd., Wallaceburg, Ontario • Steel Warehousing Corporation, Chicago, Ill.

Stainless, alloy, tool, cast-to-shape, and forging steels, precision ground flat stock, and other specialty steels



Morse's new Nylon Coupling means:

**Nobody can answer your coupling
because only Morse offers**

1 New Nylon Couplings:

Cost 20% less than conventional couplings; last indefinitely. Need no lubrication, no cover; take high torque; adjust to misalignment.

2 Flexible Chain Couplings:

For moderate speeds, steady loads. Rugged, economical . . . take higher h.p. per given diameter. Easy to install, align, and disassemble.

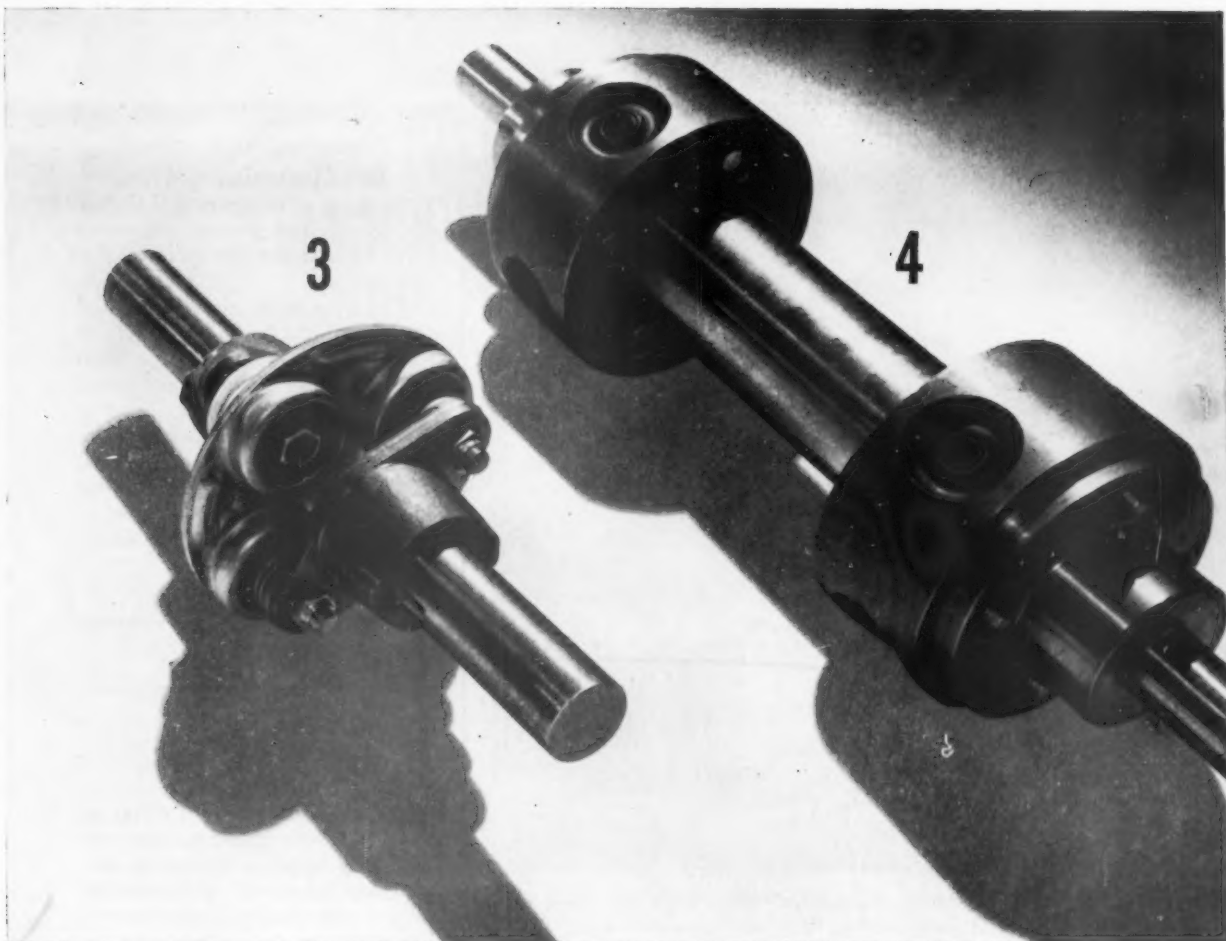
3 Morflex Couplings:

Preloaded neoprene biscuit assembly reduces misalignment stresses, increases bearing life; protects machine from shock and vibration.

4 Radial Couplings:

Neoprene biscuits— assembled radially on pins—take heavy thrusts, torques, shocks, frequent load reversals; retain torsional flexibility.

NOTE: All Morse couplings are available in driveshaft constructions.



problems as well as Morse,
all four of these flexible couplings

REMEMBER: Nobody gives you a more *impartial* analysis of your power transmission problems than Morse, because *only Morse* offers all four of these basic drives: Roller Chain, Silent Chain, Hy-Vo®, and "Timing"® Belt Drives . . . plus a complete line of power transmission products.

MORSE



* A BORG-WARNER
INDUSTRY

*Trademark

MORSE CHAIN COMPANY, Dept. 15-89, ITHACA, NEW YORK. Export Sales: Borg-Warner International, Chicago 3, Ill. In Canada: Morse Chain of Canada, Ltd., Simcoe, Ont.

AUGUST 17, 1959

For More Information Write No. 277 on Inquiry Card—Page 32

185

Cotton* rates high at St. Louis Merchants' Exchange



*Fairfax toweling used by Merchants' Exchange of St. Louis is supplied by Selmer Peerless Towel & Linen Service Co., St. Louis, Mo.

● For over a century, the products of America's grain fields have been marketed in the nation's oldest cash grain market, the Merchants' Exchange of St. Louis.

Now, in its new home, the Exchange not only provides a great trading hall, but also is a landlord, leasing offices in its building to forty tenants. For them, and for those using the trading facilities, the Exchange provides the most modern facilities,—including cotton toweling in all washrooms. "No fire hazard," says Exchange management, "and no litter. Washrooms are clean, tidy, pleasant, with cotton toweling."

If you have a stake in the maintenance of an office building, plant or institution, see what cotton can do for you. For free informative booklet, write Fairfax, Dept. S-8, 111 West 40th Street, New York 18, N. Y.

Here's How Linen Supply Works...

You buy nothing! Your linen supply dealer furnishes everything at low service cost—cabinets, pickup and delivery, automatic supply of freshly laundered towels and uniforms. Quantities can be increased or decreased on short notice. Just look up LINEN SUPPLY or TOWEL SUPPLY in your classified telephone book.

Clean Cotton Towels...

Sure Sign of Good Management

Fairfax Towels



WELLINGTON SEARS COMPANY, 111 WEST 40TH ST., NEW YORK 18, N. Y.
For More Information Write No. 278 on Inquiry Card—Page 32

News

Association Formed By Zirconium Mfrs.

A group of companies that produce melt, and process zirconium have formed the Zirconium Association.

The association was established to expand the uses of zirconium and establish a focal point from which greater cooperation could be developed between industry and government agencies.

The association's office is located at 2130 Keith Building, Cleveland 15, Ohio. Executive director of the group is W. B. Thomas of Thomas Associates, Inc.

Book Reviews

Management for the Smaller Company

American Management
Association

\$9.00

(\$6.00 for members)

This reference is especially created for managers of companies with fewer than 1000 employees. Problems in marketing, manufacturing, and finance are analyzed by executives with managerial know-how. The book offers checkpoints for comparing present company performance with the achievements of others. It shows how the smaller company can establish sound objectives and operating principles for its operations—how it can plan and organize for future profit opportunities. Techniques for building the strong reserve of managerial talent so essential to the smaller company are also explained.

Special resources available to the smaller company are discussed including government assistance, management consultants, and new management techniques like operations research. In addition, a comprehensive reading list suggests where to obtain other publications on small business, texts on management topics, and pertinent government publications.

This month's news from Raytheon

RAYTHEON ANNOUNCES NINE NEW SUBMINIATURE TRANSISTORS

Raytheon Distributors offer you broadest line of Submins

WHATEVER YOUR REQUIREMENTS—Raytheon offers 22 types of subminiature transistors for use in computers, general purpose audio, IF and RF for radio receivers and general purpose RF circuits. This broad Raytheon line now lets you select subminiature transistors to meet your exact requirements.

TOP PERFORMANCE AND RELIABILITY—Every Raytheon transistor features rigid processing control that insures reliability and stability of electrical characteristics. This rigid control lets you select any of these types with complete confidence in their performance.

FAST, EFFICIENT SERVICE—Raytheon Industrial Electronic Distributors offer these transistors and products to fill all your electronic needs from complete local stocks. You get faster, more efficient service and at no penalty in price.

SINGLE SOURCE, ONE STOP BUYING—Whatever your electronic needs, your local Raytheon Industrial Products Distributor offers you a complete line of industrial tubes including a new line of industrial control tubes, electronic hardware and now the broadest line of subminiature transistors available.

About Industrial Distributors

by John Hickey,
Raytheon Industrial Products Manager

Every industrial distributor must have you, the customer, in mind at all times. To do this he must offer at all times, the best of service—fast and efficient, complete knowledge of your electronic needs, full, one-stop coverage of all your electronic requirements, and the best in prices. Every Raytheon Industrial Distributor satisfies all these requirements. If you don't know your nearest Raytheon Industrial Electronics Distributor, write me direct and I'll be glad to give him your name or have him call you.



RAYTHEON COMPANY • DISTRIBUTOR PRODUCTS DIVISION

RAYTHEON
Raytheon
Distributors
Serving
Key Markets
Include:

Baltimore, Md.
Wholesale Radio Parts Company
Birmingham, Ala.
Forbes Distributing Company
Boston, Mass.
DeMambro Radio Supply Company
Burbank, Cal.
Valley Electronic Supply Company
Chicago, Ill.
Newark Electric Company
Cleveland, Ohio
Main Line Cleveland, Inc.
Pioneer Electronic Supply Corporation
Dayton, Ohio
Srepc, Inc.
Denver, Colo.
Ward Terry & Company
Detroit, Mich.
Ferguson Electronic Supply Company
Inglewood, Cal.
Newark Electric Company
Kansas City, Mo.
Burststein-Applebee Company
Knoxville, Tenn.
Bondurant Bros. Company
Los Angeles, Cal.
Kierulff Electronics Corporation
Milwaukee, Wis.
Electronic Expeditors, Inc.
Mobile, Ala.
Forbes Electronic Distributors, Inc.
New York City
Arrow Electronics, Inc.
H. L. Dalis, Inc.
Milo Electronics Corporation
Oakland, Cal.
Elmar Electronics
Philadelphia, Pa.
Almo Radio Company
Phoenix, Ariz.
Radio Specialties & Appliance Corporation
Portland, Ore.
Lou Johnson Company
Tampa, Fla.
Thurrow Distributors
Tulsa, Okla.
S & S Radio Supply
Washington, D. C.
Electronic Wholesalers, Inc.

This is a partial listing only. Names of other Raytheon Industrial Distributors on request from John Hickey, Raytheon Distributor Products Division, 55 Chapel St., Newton 58, Mass.

... FAST, UNIFORM PROCESSING — 1960 ...

CAMBRIDGE METAL-MESH BELTS are the answer to the big problems you'll face in the competitive 60's—tighter operating costs, higher production and consistent quality.

Continuous movement of foods, metal parts, ceramics or chemicals on Cambridge Belts through processing operations speeds production and eliminates costly manual handling. Open mesh construction allows heat, cold or liquids to flow through the belt and around the product for thorough, uniform treatment. Superior belt design and manufacturing techniques mean longer life, fewer repairs, lower operating costs.

Belts can be made heatproof, coldproof or acidproof—in any mesh, weave, metal or alloy—with any side or surface attachments.

Have your Engineering Department call the Cambridge Field Engineer in your area. He'll be glad to discuss any aspect of Cambridge Belts—from manufacture to installation and service. He's listed in the yellow pages under "Belting, Mechanical". Or, write for **FREE 130-PAGE REFERENCE MANUAL**.



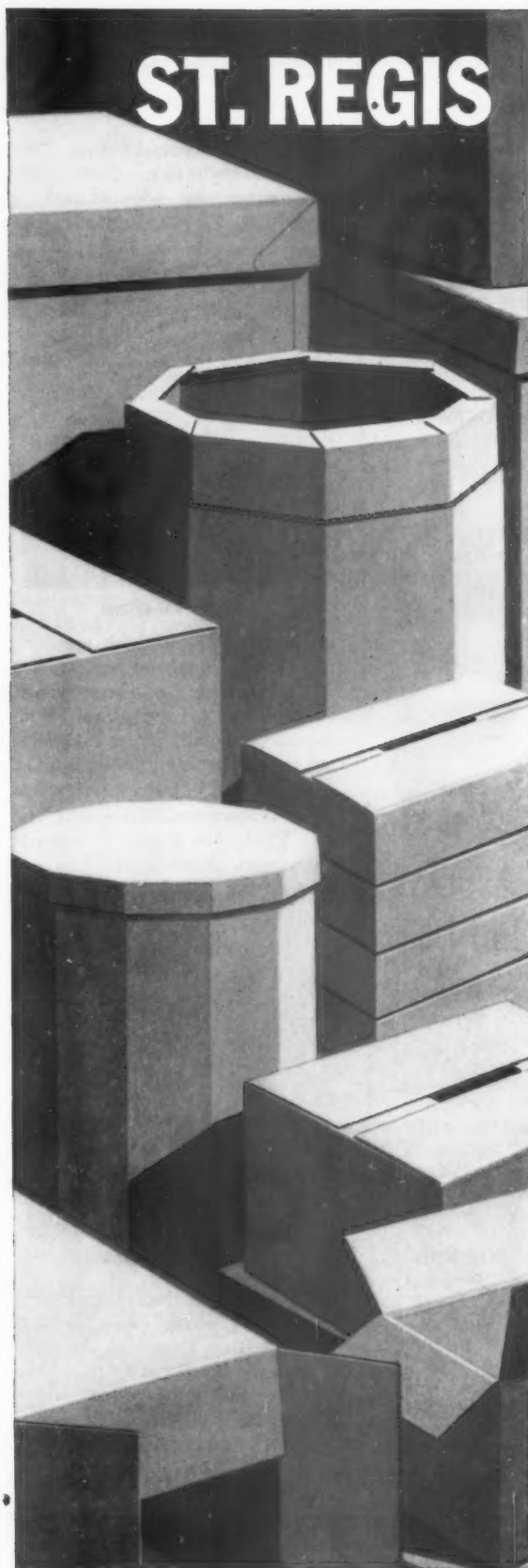
The Cambridge Wire Cloth Co.

Department AK • Cambridge 8, Md.

Manufacturers of Wire Cloth,
Metal-Mesh Conveyor Belts, Wire Cloth Fabrications



For More Information Write No. 280 on Inquiry Card—Page 32



ST. REGIS

MAKES BOXES

AND BOXES *at Buffalo, New York*
AND BOXES *at Cambridge, Ohio*
AND BOXES *at Canton, Ohio*
AND BOXES *at Chicago, Illinois*
AND BOXES *at Cleveland, Ohio*
AND BOXES *at Cohoes, New York*
AND BOXES *at Coshocton, Ohio*
AND BOXES *at Crafton, Pa.*
AND BOXES *at Dallas, Texas*
AND BOXES *at Dubuque, Iowa*
AND BOXES *at Fullerton, California*
AND BOXES *at Garland, Texas*
AND BOXES *at Grafton, W. Va.*
AND BOXES *at Hagerstown, Maryland*
AND BOXES *at Jacksonville, Florida*
AND BOXES *at Mt. Wolf, Pennsylvania*
AND BOXES *at Newark, Ohio*
AND BOXES *at Pittsburgh, Pa.*
AND BOXES *at Salinas, California*

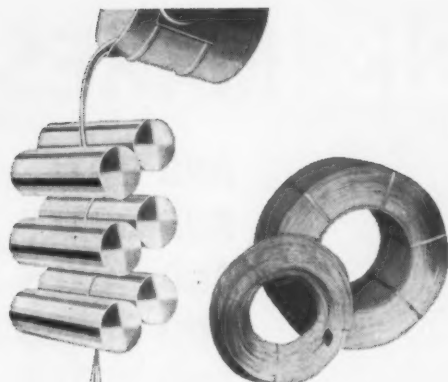
That's right! St. Regis makes boxes in 19 corrugated box plants located throughout America. *But there's more to what we do than just make boxes.* We've adopted the most modern facilities for manufacturing and printing. Our services include a testing program that makes certain of the most practical, safest container for your product—even if it is one of those "hard to package" items.

Result? A superior shipping container that gets your product to market—and helps market your product when it gets there. For more specific information, write St. Regis Paper Company, Dept. Pu-859, 150 East 42nd Street, New York 17, N. Y.

CONTAINER DIVISION

St. Regis 
PAPER COMPANY
 150 EAST 42ND STREET, NEW YORK 17, N. Y.

The only one
of its kind
in the
country...



SEE THE DIFFERENCE
New 1000-lb. coil is
neatly wound for maximum efficiency.



RIVERSIDE-ALLOY'S CONTINUOUS CASTING PROCESS PREVENTS POROSITY... SLASHES RELOADING TIME

Since phosphor bronze is one of the most difficult non-ferrous alloys to make satisfactorily into wire, how does Riverside keep so far ahead of competition? Here's one of the reasons: *Continuous casting*, a radical new and secret process, exclusive in America at Riverside-Alloy.

A special method of continuous casting eliminates the porosity of wire cast in water-cooled molds... brings you weld-free wire in coils up to 1000 lbs.

SPEED. With this new large coil your production runs are longer than ever before. Riverside wire speeds and smooths

your fabrication and scheduling.

QUALITY. Riverside *continuous-cast* material is denser, more homogeneous than antiquated mold-cast products. Wire drawn from the continuous coil is stronger, free from weak spots which can stop production and cause high reject rates.

Your production equipment can be easily adapted to hold the new 1000-lb. coils of Riverside continuous-cast bronze wire. Find out how you can save with this remarkable new process. Write *Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.*

RIVERSIDE-ALLOY **PORTER** **METAL DIVISION**

H.K. PORTER COMPANY, INC.

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION, Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACATORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION, H. K. PORTER COMPANY DE MEXICO, S. A.; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepco" Systems—H. K. PORTER COMPANY (CANADA) LTD.

For More Information Write No. 282 on Inquiry Card—Page 32

Purchasing People

(Continued from page 57)

The Iona Manufacturing Company, Manchester, Conn., has announced the appointment of Ulysses S. Violette as director of



U. S. Violette

purchases and product services. Mr. Violette has been Iona's plant superintendent for three years. He was formerly national products service manager at The Winsted Hardware Manufacturing Co.

The Watertown Division of The New York Air Brake Company, Watertown, New York, has announced the appointment of Wil-



William F. Slook

liam F. Slook as manager of purchases. Mr. Slook came to the company from Fairchild Aircraft Company, Hagerstown, Md., where he was employed for nineteen years. His extensive experience in the aircraft industry includes tool manufacture, tool planning, estimating, subcontracting, engineering and purchasing. He has completed Fordham University's aircraft buyer's course.

Please turn to page 196

250,000 Power Tools per year with Cities Service Pacemaker T

Porter-Cable, one of the world's largest manufacturers of portable wood-working tools, has long known the value of quality in a lubricant as well as in a power tool. Each piece of equipment made by Porter-Cable is carefully pre-tested before manufacture and then continually tested for years after its original appearance on the market. It is this kind of thoroughness that led to Porter-Cable's choice of Cities Service Pacemaker 300 T as the hydraulic oil to power their Fostermatic Screw Machines and Landis Grinders.

But Cities Service Pacemaker T is more than a hydraulic oil... it is a multi-purpose line of lubricants suited for many applications. Porter-Cable also uses Pacemaker 300 T for lubricating valves in the plant's compressors. Pacemaker T can be used to lubricate bearings, diesel engines, electric motors, generators, reduction gear drives, turbines and in circulating systems.

Pacemaker T is available in various viscosities to give you one line of quality lubricants that can save costly warehouse space by simplifying your inventory... cut maintenance costs and extend equipment life. These oils have high viscosity index, excellent heat resistant properties and are chemically fortified against oxidation, corrosion, rust formation and foaming.

Contact your nearest Cities Service office and an experienced Lubrication Engineer will call to make specific recommendations for your plant on the use of Pacemaker T. Or for further information, write: Cities Service Oil Company, Sixty Wall Tower, New York 5, N. Y.

CITIES SERVICE
QUALITY PETROLEUM PRODUCTS



Porter-Cable Machine Company
Syracuse, New York



Porter-Cable Research Engineer testing engine for new lawnmower the company will produce soon. All new products undergo extensive research and testing before production.

Backbone of Production Line is Automatic Screw Machine. Pacemaker T gives outstanding performance as hydraulic medium in these machines as well as in Landis grinders and as a general lubricant!





000 Series Angle Wrenches
NEW
75% more output ... for
\$3750 Dividend Dollars/year.



002 Series Angle Wrench
NEW
36% more output
... for \$1800 Dividend
Dollars/year.



18 Series Angle Wrench
NEW
30% more output
... for \$1500 Dividend
Dollars/year.



01 Series Angle Wrench
NEW
44.4% more output ... for
\$2220 Dividend Dollars/year.

4 NEW SERIES ANGLE WRENCHES

NEW designs **NEW** speeds **NEW** power to give you an

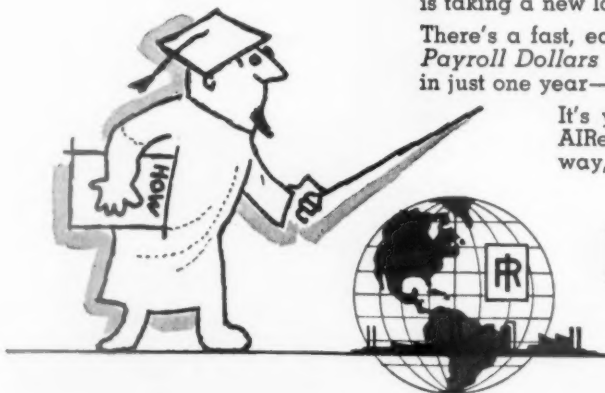
ANNUAL DIVIDEND on your PAYROLL DOLLARS

If your operators are using older model angle wrenches, you can increase their man-hour productivity by as much as \$3750 Payroll Dollars in one year, just by replacing the older tools with one of the four new I-R designs.

Multiply these *Annual Dividends* by the number of angle wrench operators in your plant, and you can see why management today is taking a new look at portable tool operations.

There's a fast, easy way to calculate the amount of *Dividend on Payroll Dollars* these new I-R angle wrenches can help you earn in just one year—without adding to your present payroll.

It's yours without obligation. To get it, call your I-R AIRengineer today. Or write Ingersoll-Rand, 11 Broadway, New York 4, N. Y.



Ingersoll-Rand

11 Broadway, New York 4, N.Y.

**Tools plus AIRengineering
increase output per man**

8-922

CLARK CUTS DOWNTIME, REDUCES MATERIAL COSTS 25%

The Clark Machine and Welding Company, Inc., of Baltimore, Maryland, has a department which specializes in rebuilding industrial and construction equipment. They've grown in 25 years from a 4-man shop to the largest maintenance shop in Maryland—employing about 75 people. During that time they've tried just about every automatic hardsurfacing wire and flux available, and have had troubles ranging from high material costs to excessive downtime in the shop.



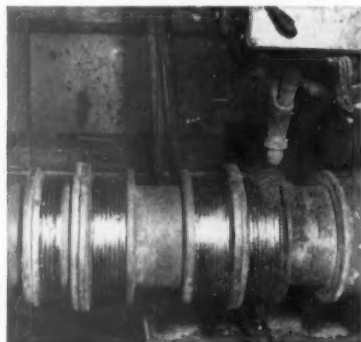
Rebuilding tractor rollers in the Clark shop. The fixture was designed and fabricated by Clark.



A. L. Ballard, Clark's welding foreman, "We've eliminated many production problems, cut costs and improved the quality of our work."

Work stoppages were caused when some welding wire would jam in the feed rolls of the automatic welder or the wire would stick. This, of course, not only caused the machine to be stopped, but affected the quality of the deposit as well.

Other granular fluxes with alloy wire were tried. Performance was better, but the alloy wire proved too expensive, according to Phillip Killen, Vice President and General Manager of the firm.



Al Ballard, the company's automatic welding foreman, has found that Lincoln agglomerated fluxes give him the most reliable performance. The fluxes not only cost 25% less than the most similar competing product, but they contain the alloying elements making it possible to use less expensive mild steel wire.

Mr. Killen states that the use of agglomerated fluxes and Lincoln automatic welding equipment have given his shop a definite advantage with consistently top quality work at a substantial saving.

HARDSURFACING INFORMATION MADE AVAILABLE

A series of How-to-do-it bulletins on Automatic Submerged Arc hardsurfacing are being published by The Lincoln Electric Company.

A basic bulletin, number 3200.1 on Automatic Submerged Arc hardsurfacing starts the series.

Specific information on hardsurfacing and rebuilding is presently available on the following items: tractor rollers, tractor idlers, mine car wheels, scraper blades, steel mill rolls, crusher rolls (with automatic), crusher rolls (with semi-automatic), Raymond bowl rolls, Raymond bowl rings, tractor treads and cement mill equipment.

Copies of these bulletins may be obtained by writing on company letterhead to:

*The World's Largest Manufacturer
of Arc Welding Equipment*



THE LINCOLN ELECTRIC COMPANY, DEPT. 1405, CLEVELAND 17, OHIO



Ever need pipe flanges yesterday?

Try your TWX or telephone the next time you need pipe flanges in a hurry. Phoenix will get them into your hands quickly without order processing red tape and delays. All popular types and sizes are available for immediate shipment from Catasauqua, Pa. in the East and from Joliet, Ill. in the Midwest by air, truck, rail or water. You never have to worry about uniform quality because Phoenix is an old hand at forging and machining the best flanges you can buy. When speedy handling is essential,

or you need answers quickly, or you require special service of any type, get in touch with Phoenix. You will like doing business with the alert, fast-moving Phoenix organization.

Write for free 36-page pocket-size booklet containing useful data on flanges. It is one of the handiest booklets available for quick, easy reference.



Leading Manufacturers of Pipe and Tank Flanges and Commercial Forgings




FLANGE AND FORGING DIVISION

PHOENIX MANUFACTURING COMPANY

DIVISION — UNION TANK CAR COMPANY

CATASAUQUA, PA. • JOLIET, ILL. • FOUNDED 1882

PHOENIX DIVISIONS: FLANGE AND FORGING DIVISION, STEEL MILL DIVISION, HORSESHOE PRODUCTS DIVISION, FABRICATING REBAR DIVISION



UNION SEAMLESS

Now available ■ **ANOTHER
QUALITY
UNION STEEL
STAINLESS
PRODUCT**

**pipe
tube**

Contact your local
Union Steel distributor

■ *leadership through research*

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STEEL**

CORPORATION

UNION, NEW JERSEY • MURDOCK 7-2000

UNION STEEL DISTRIBUTORS AVAILABLE NATIONALLY

STAINLESS and SPECIALTY STEELS • exclusively

**whether you want
a yard or a mile**

BORROUGHS STEEL SHELVING

is your best buy!

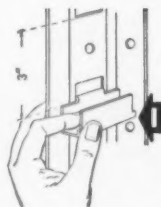
Right — open shelving installation at J. L. Hudson Co. warehouse, Detroit, Michigan.
Below — closed type shelving installation at Upjohn Co., Dallas, Texas.



send for catalog

Represented in Sweet's Catalog,
Plant Engineering File 4G 80

**the most simple, most flexible, most rapidly
assembled shelving on the market!**



Place your orders, gentlemen, for America's NUMBER ONE steel shelving . . . the tough, rugged shelving with the exclusive Shelf Support Brackets (pictured above) that make it possible to install or rearrange shelves in a matter of seconds. Just insert 4 Shelf Support Brackets into post slots . . . tilt shelf into Support Brackets . . . and shelf is ready for loading. What's more . . . except for the top shelf (2 bolts and 2 nuts), no other bolts or nuts are required for Borroughs shelves . . . no special tools are needed to assemble units . . . any unit or shelf can be moved independently. Write today for additional data.

BORROUGHS MANUFACTURING COMPANY OF KALAMAZOO

A SUBSIDIARY OF THE AMERICAN METAL PRODUCTS COMPANY OF DETROIT

3014 NORTH BURDICK ST. **amp**® KALAMAZOO, MICHIGAN

For More Information Write No. 288 on Inquiry Card—Page 32

Purchasing People

(Continued from page 190)

Appointment of **Frank E. Whyte** to the newly created position of director of purchasing was announced by **SKF Industries, Inc.**,



Frank E. Whyte

Philadelphia, Pa. In his new post, Mr. Whyte will direct and coordinate purchasing and traffic department activities. Prior to joining SKF in 1957 as general purchasing agent, he was director of purchases for an abrasives' manufacturer. Mr. Whyte is a past president of the Buffalo Purchasing Agents Association, and he was also vice president of the National Association of Purchasing Agents. He is now a member of the Philadelphia Purchasing Agents Association. He is a graduate of the University of Missouri. He has a master's degree from the Harvard University Graduate Business School.

John T. Harbison has been named director of purchasing for the Apparatus and Optical Division, Eastman Kodak Company, Rochester, N.Y. Mr. Harbison succeeds **Herbert B. Collins** who has retired. Mr. Harbison joined the drafting department of Kodak's Hawk-Eye Works in 1922. A year later he became the plant's employment manager. In 1931 he was named purchasing agent. He was appointed assistant director of purchasing for the A&O Division when that organization was formed in 1956. Mr. Harbison is a graduate of the University of Rochester. He is a member of the National Association of Purchasing Agents.

Please turn to page 198



INDESTRUCTIBLE
SLAB CONVEYOR BELTING



Low-cost,
Long-life

Conveyor Belting

—straight to you

from your "U.S." Distributor's stocks—

NO WAITING FOR FACTORY DELIVERY

TWICE THE
QUALITY OF
OTHER SLABS—
YET THE COST
IS THE SAME!

U. S. Indestructible® Slab Belting is the low-cost belting especially suitable for a wide range of uses by industry. It is the right belt for light assembly line work and horizontal (and slight incline) package material handling. Your "U. S." Distributor cuts the conveyor belting slab to the size of your conveying equipment, and delivers it to your plant without delay.

U. S. Indestructible Belting is the long-life belting because it is made of flexible *natural* rubber, with thick coatings of supple natural rubber between flexible sturdy duck. The belt is orange-colored, with friction surface and skims. It has much higher adhesion than any other slab, yet costs no more. It fits the smaller pulleys of package handling equipment.

Contact your local "U. S." Distributor or use the coupon below.

United States Rubber
Rockefeller Center, New York 20, N. Y.

I convey the following materials _____

Please have your field representative call upon me to examine my conveyor belting requirements.

Name _____

Address _____

City _____ Zone _____ State _____



Mechanical Goods Division

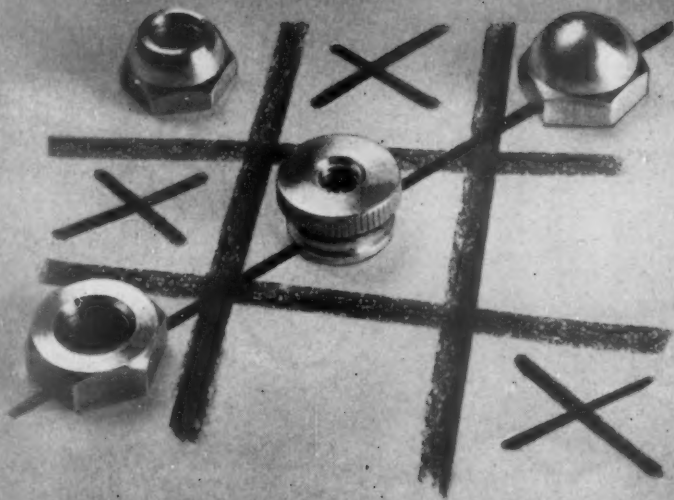
United States Rubber

WORLD'S LARGEST MANUFACTURER OF INDUSTRIAL RUBBER PRODUCTS

Rockefeller Center, New York 20, N. Y.

In Canada: Dominion Rubber Company, Ltd.

**FOR
MASS PRODUCED
PRECISION...**



**YOU CAN'T BEAT
Fischer TURNED
BRASS AND
ALUMINUM NUTS**

In the game of tick-tack-toe, the right *second* move is very important. It can pre-determine the winner.

The same principle applies in purchasing precision nuts. *First*: decide the type and size of nut required. *Second*: specify the recognized source for quality, delivery and price . . . Fischer Special Mfg. Co.

As the leading producer of "turned" nuts, Fischer supplies standard, special and miniature nuts to exact customer specifications. Fischer nuts, mass produced by unique automatic machines, cost no more than those made by less precise methods . . . but their uniform accuracy assures fewer problems and new savings in fastening and assembly operations. *That makes you the winner!*

FOR DETAILS AND SPECIFICATIONS
SEND FOR CATALOG FS-1000.

there's no premium for precision at



***Fischer* SPECIAL MFG. CO.**

471 MORGAN STREET • CINCINNATI 6, OHIO
For More Information Write No. 290 on Inquiry Card—Page 32

8499-PS

Purchasing People

(Continued from page 196)

Howard A. Beiseigel has been named purchasing agent of **A-S-R Products Corporation** for its plant in Staunton, Va. Mr. Beiseigel has been with A-S-R since 1955. Previously he was a chemical engineer at Lehigh Portland Cement Company.

Daniel S. Steelman has been appointed director of purchasing of **Fischer & Porter Company**, Hatboro, Pa. Mr. Steelman was



D. S. Steelman

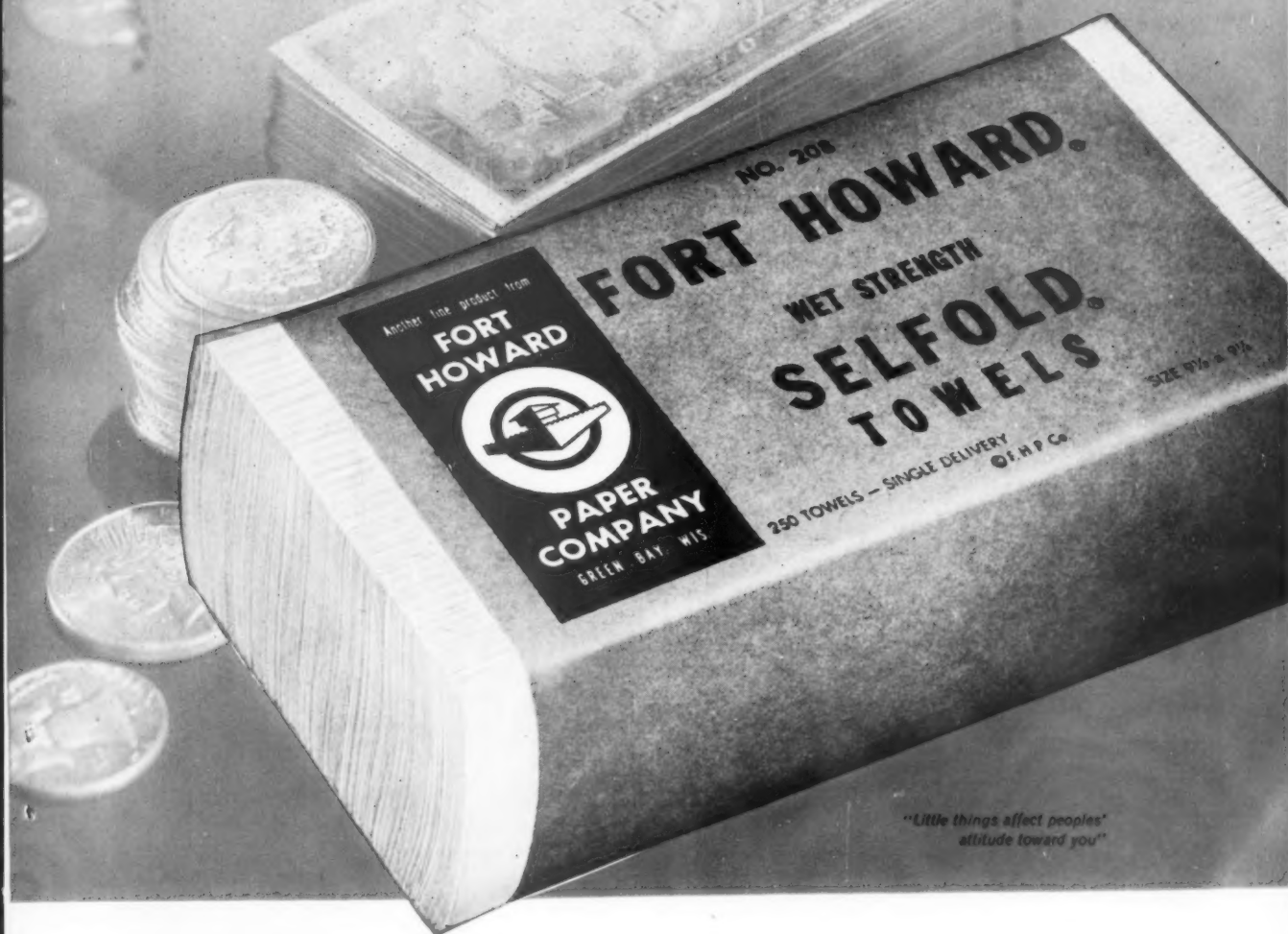
formerly purchasing agent for the company. In addition to being responsible for the procurement of all production, maintenance-repair-operating, capital and construction material for Fischer & Porter, Mr. Steelman will also direct purchasing for F&P subsidiaries: Alloy Steel Casting Company, Southampton, Pa.; Andrews Glass Company, Vineland, N. J., and Warminster Fiberglass Company, Hatboro, Pa. He holds a two year certificate in metallurgy from Temple University as well as a Bachelor of Science degree in industrial management from LaSalle College, Philadelphia. Mr. Steelman is a member of the National Association of Purchasing Agents and the Philadelphia Association of Purchasing Agents.

Recently we announced in this column that **H. B. Gordon** had been appointed purchasing agent at the **Stamping Division, Eaton Manufacturing Company, Cleveland, Ohio**. We should have said Mr. Gordon was appointed assistant purchasing agent of Eaton's Stamping Division.

For More Information Write No. 291
on Inquiry Card—Page 32 →
PURCHASING

THRIFTY

... big quality money saver
... good-will builder in the washroom



"Little things affect peoples'
attitude toward you"



● Fort Howard Paper Company

Fort Howard Paper Company

Green Bay, Wisconsin

America's most complete line of paper towels, tissues and napkins



How can a directory

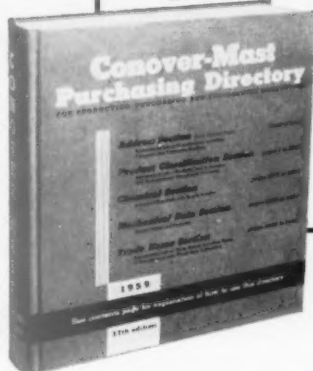
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be **complete**?

the reasons:

- 1** all consumer items are rigidly excluded
- 2** cross-indexing means no duplication of product headings
- 3** chemicals listed separately with space-saving "key" method

New



Conover-Mast

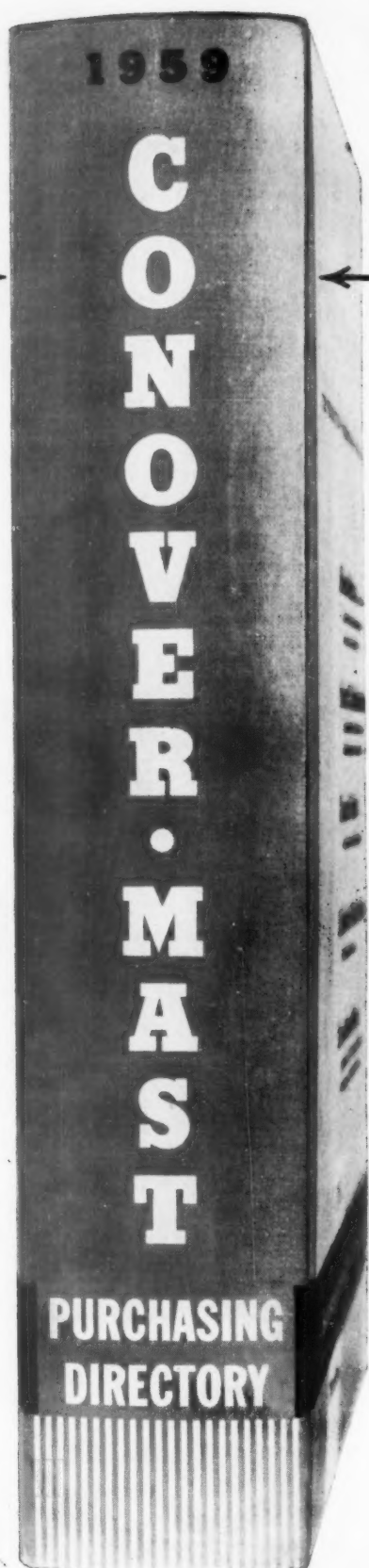
Purchasing Directory

now gives telephone numbers of companies selling to industry.

Next time you use a directory check C-MPD. You will find it complete, accurate, and easy to use. You will find the telephone numbers a real time-saver, too.

**Conover-Mast
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**MODEL
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A new standard of quality, durability, beauty. Saddle seat and back are specially upholstered to retain shape. Satin-Chrome or oven-baked Plastelle enamel finishes.

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ROYAL METAL MANUFACTURING COMPANY
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AUGUST 17, 1959

New!

Marsh Dial Thermometers

designed expressly
for piping and ducts

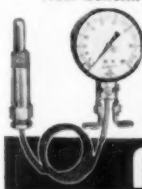
Here you have everything that has been so long needed in thermometers for piping and duct work.

Big 3½" and 4½" dials are far easier to read; still more important, can be turned and tilted to any reading angle.

Instead of illegible, breakable glass tube, you now have the readable, unbreakable Marsh—the thermometer that gives greater readable accuracy than any glass tube thermometer and has the famous Marsh "Recalibrator" to keep it accurate.

Complete line provides for every service. Separable sockets and swivel attachment nuts make connecting and disconnecting easy. Extension necks provide for insulated piping and ducts.

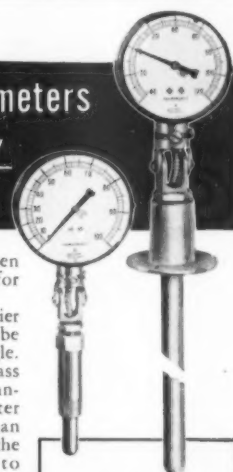
New bulletin covers interesting details



Marsh Instrument Company
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Gas Corporation
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Marsh Instrument & Valve Co.
(Can.) Ltd., 8407 103rd St.
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MARSH



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240° F. and 100°—300°
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nection.

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Ranges: minus 40°—
120° F., 0°—160° F., 0°
—220° F. Long stems
extend into ducts for
accurate indication.

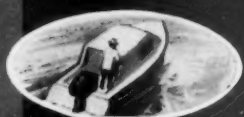
Also available in
remote reading types
with 6 ft. tubing. Same
ranges, sockets, stems,
dial sizes.

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Sandvik SPIRAL springs provide long-lived, low-cost service for starters, guard return springs, toys or tension devices where constant torque is not critical.

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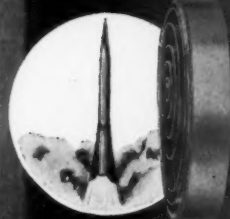
Sandvik CROSS-CURVED springs have a dual tension produced by winding the spring against both its tempered spiral and against a special convex curvature across the width of the strip. The longer, more even energy release provides uniform power; for timing instruments, carriage return springs, movie cameras and other high performance applications.

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Sandvik 2R25 stain-less springs are a super quality which give 5 to 10 times longer performance than ordinary carbon steel springs and can take the corrosive attacks of varying atmospheres too. For applications where performance demand out-ranks cost, such as in missiles, aircraft and special instruments.

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APPLICATIONS



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Solves toughest problems.
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Even on small-lot orders.

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On your next call for motors, get MORE...contact DOERR! Expanded line includes ratings from 1/30 to 15 hp. Specials are our specialty—backed by nation-wide, expert field service. Phone Cedarburg 801 or write...



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AUGUST 17, 1959

CUT TOOLING COSTS



Let Us Supply You With Drawn Aluminum Shells

Alcoa's Jobbing Division is already tooled up to supply drawn aluminum shells. They are available on quotation in various wall thicknesses and alloys, in heights up to 23 in., and with diameters up to 48 in. And this is where you can save important money on production and avoid expensive tool and die installations. When you turn the complete job over to Alcoa, it is started sooner and completed faster. You eliminate costly overtime and production headaches. And best of all, you can rely on Alcoa's years of experience for quality work.

FREE TO MANUFACTURERS: Descriptive booklet. In addition to such "standard" items as drawn aluminum shells, Alcoa's Jobbing Division has the world's finest fabricating facilities for subcontracting to your order aluminum components for anything you make. A 16-page, free booklet describes how these facilities can save tooling costs, lighten your production load and generally cost you less than if you shouldered the whole job yourself. For your copy, write or mail the coupon.



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Employment Service

Experience: Purchasing field expeditor, major aircraft instrument manufacturer; 2½ years. Now in project management for same company. Total time in representative employment, 10 years. Desire purchasing field work with airframe, airline or power-plant manufacturer. Detailed resume on request.
Education: 2½ years college—mechanical drafting grad., tech school.
Will relocate.
Write: Box 430

Experience: Purchasing agent and traffic mgr.—12 yrs. experience. Strong in packaging materials, paper products. Member of executive & cost reduction committees. Experienced in purchase of almost all materials. Set-up specs. and standardization of many package materials such as cartons, boxes, etc. Also strong in all phases of traffic.
Education: Some college—N. A. P. A. purchasing course—A. M. A. purchasing management course—traffic management course at academy of advanced traffic.
Write: Box 426

Experience: Presently purchasing assistant with seven years experience in a major oil firm. Background: formulations cost accounting, drawback consultant, inventory control, purchasing and expediting.
Education: BS degree—Mgt.—major, Mkt.—minor.
Will relocate.
Write: Box 433

Experience: Twelve years production planning engineer & special assignments. Thirteen years assistant purchasing agent & purchasing agent all at Midland-Ross Corporation, Detroit Division.
Education: One year college—night school extension courses.
Will relocate.
Write: Box 427

Experience: Eight years varied purchasing experience in all phases of purchasing function, obtaining and analyzing competitive bids, placing orders, following thru for required delivery, approving invoices for payment, effecting any necessary adjustments or damage claims. Have developed systems and procedures.
Education: B. S. management and marketing—honor graduate—courses in industrial purchasing, cost accounting, business law, finance, industrial management and related background work.
Will relocate in Midwest.
Write: Box 429

Experience: Twelve years as purchasing agent for mfr. of heavy & medium machinery. Five years as purchasing agent for mfr. of utility, industrial and chemical plants. Currently employed. Complete resume upon request.
Education: Evening courses in business administration and purchasing.
Prefer: New Jersey.
Write: Box 432

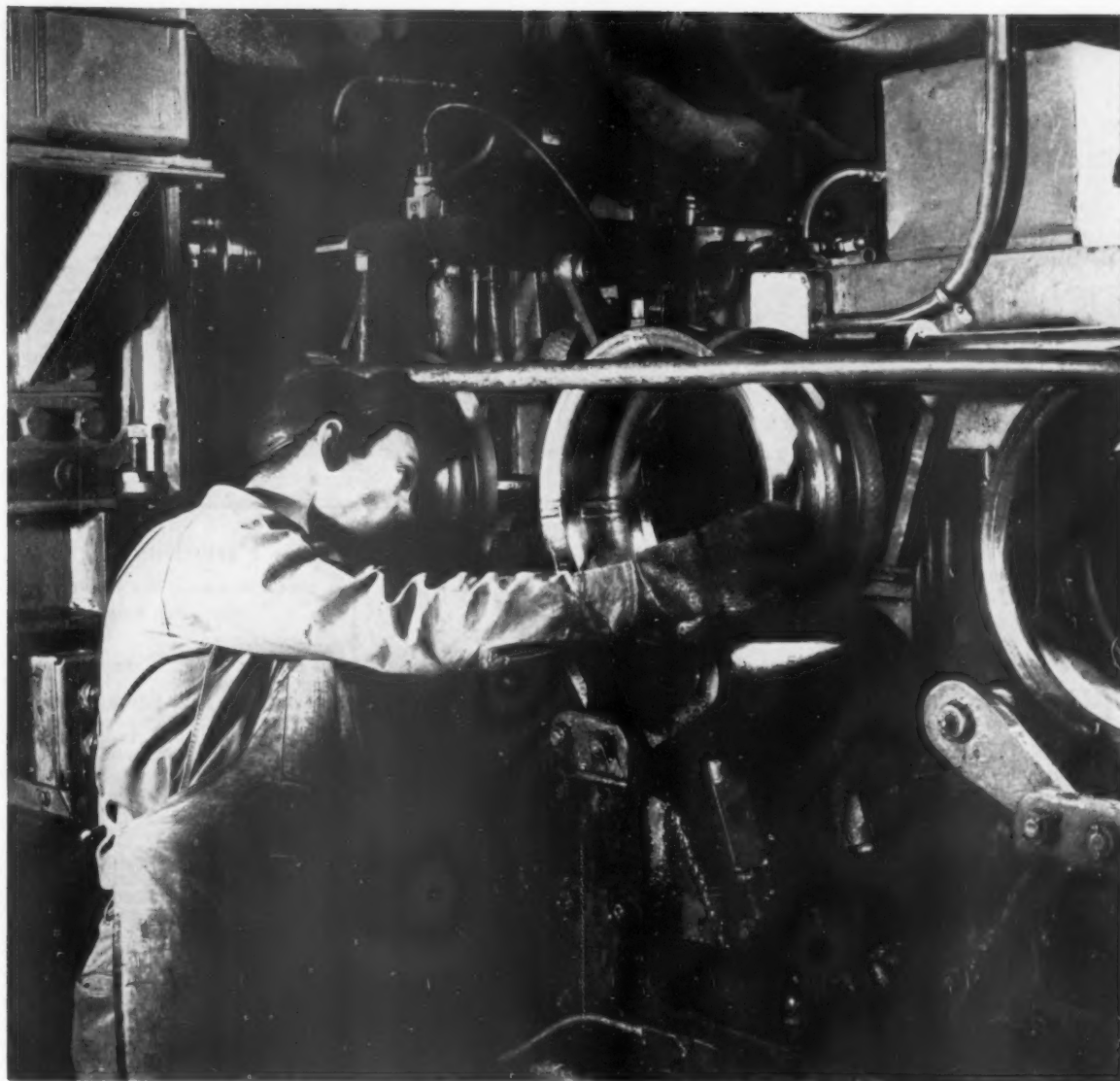
Experience: Canadian—twenty years diversified industrial buying—MRO supplies and raw materials in foundry, machine shop, woodworking, electrical, textile, manufacturing. Presently P.A. large corporation. Broad knowledge purchasing organization, customs, traffic. Would be of value to U.S. organization locating in Canada.
Education: Bus. adm.—home study.
Will relocate in Canada.
Write: Box 428

Experience: Asst. P. A. directing all phases of industrial purchasing including repair, maintenance, operating, construction, contracts, castings, electrical, packaging, lumber mill supplies, office equip. and supplies, printing for multi-plant can corp. Previously four years as buyer for multi-plant steel corp.—Purchased in every product area at one time or another.
Education: 1½ yrs. univ.—working at night for degree in purchasing—completed a purchasing law course.
Write: Box 435

Experience: Five years metal fabrication. Have thorough knowledge inventory control, cost analysis, expediting, traffic, scheduling, plant layout. Have purchased from office supplies to anything needed for a production line. Presently employed—seek more responsible position.
Education: College—3 years—major—business management—have completed USAF Radar Electronic Fundamentals School.
Prefer: New York City.
Write: Box 434

Listings in this department are offered without charge. Both purchasing department personnel interested in changing jobs and employers in search of replacements or additions to their departments may take advantage of this service. When writing, specify whether you want the applicant's form or the employer's form. Address all correspondence—whether for forms, or in answer to an employment advertisement, to: Box No., Employment Service Department, PURCHASING Magazine, 205 East 42nd Street, New York 17, New York.

Experience: Ten years as asst. buyer for industrial plant. Experienced in all phases of purchasing. 26 yrs. as store-room & receiving dept. supervisor—Experience in making contracts for various plant repairs, checking and paying invoices, freight bills. Experienced in perpetual inventory control.
Will relocate in Penna.
Write: Box 431



A workman checks the contour of a wheel rim before it passes to the next, and final, forming operation. Later, the rims will be welded to the hub and drum assembly to make the complete wheel.

Automobile wheels - a torture test for sheet steel

What a beating the wheels on your automobile must take! And how doggedly they stand up under their gruelling ordeal! Surely this is dramatic proof of the invincibility of strong sheet steel.

But the true torture test of steel sheets takes place in the actual making of the wheels themselves. Take rims for example. Here, the tough, strong sheet must be ductile enough to be spun to the complex contour required. It's no doubt one of the toughest tests imposed on steel sheets anywhere.

Only top-quality sheets—like Bethlehem's—will take such severe punishment with uniform success.

Bethlehem sheets have been formed into hundreds of thousands of wheels for leading makes of automobiles. We'll gladly discuss your sheet steel needs, whenever it suits you. Just call our nearest office.

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LOOK at the hazards in floor maintenance



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It's easily done with a specially blended West resin emulsion. This safe, high-traction finish contains no wax — yet produces a glossy, hard, durable film on all types of floors.

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MATERIALS-HANDLING NEWS

NEW AND UNUSUAL APPLICATIONS OF BASSICK CASTERS THAT MIGHT BE ADAPTED TO YOUR HANDLING PROBLEMS



Missile on casters. Nike-Hercules near end of final assembly line, as specialists install cable for guidance system at plant.

Casters give important savings in all industry and business

Following the lead of heavy industry, many light industrial firms, warehouses, and even retailers are finding reduced operating costs via streamlined materials-handling.

Casters have kept pace. Recent Bassick developments in addition to the H68 casters shown below include:

A light duty Floating Hub caster with a shock-absorbing, spring-controlled wheel designed to accommodate loads from 50 to 150 pounds. The "B-Line" of 4", 5" and 6" sanitary casters designed for easy cleaning. These are ideal for use in food processing, bottling plants, restaurants, bakeries . . . anywhere cleanliness is important.



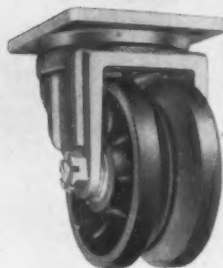
Medium light duty Series H68 casters with two level ball bearing swivels, are ideal for industrial, warehouse and store applications. All exposed metal surfaces are zinc plated. Long service life.

Distributors Stock Casters

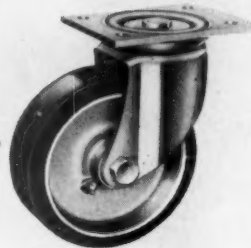
Local industrial distributors who handle Bassick casters carry most popular models in stock, can deliver promptly. They can recommend the most efficient casters for your specific job. And where necessary, they may call in a factory representative for engineering recommendations or special caster designs. All of which makes your local Bassick distributor a handy man to know.

9.37

CASTERS AID AUTOMATION OF MATERIALS-HANDLING



For inverted angle iron tracks: Bassick grooved wheel casters effect amazing reductions in handling costs. Light, medium, heavy and super-heavy duty models.



For heavy duty drag-line truck systems: Bassick Series "S99" casters combine the advantages of strength (heavy gauge steel) with light weight and economy. Sealed bearings optional.

On display at the Materials-Handling Industry's Triennial Convention in Cleveland, this year, will be in-floor dragline systems, overhead chain belt pulleys, tractor pulled truck trains, monorail and dual track set-ups.

These and other advances toward the automation of materials-handling are increasing throughout heavy industry. Here labor traditionally accounts for the bulk of operating costs and labor-saving devices are constantly being sought.

Casters that can take relatively high speeds and abuse of such power-pulled applications have also been developed over the years. Shown here are some of the specially designed Bassick casters with features that suit them for automatic

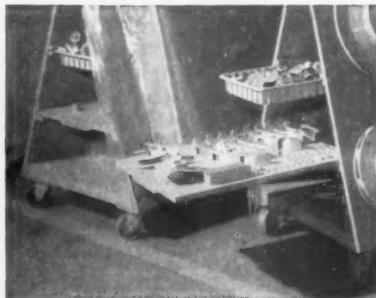
and semi-automatic handling systems. Because of their widespread acceptance, these are now standard casters in Bassick's line and are available through local industrial distributors who handle Bassick casters.



For power-drawn truck trains: Bassick Trailer Duty casters with heavy duty semi-steel or Bassick "On-core" wheels (shown) will take the abuse of rough floors, high speeds. Milspec and "Floating Hub" models also available.

Rocket parts on castered carts save

handling time, money



At this California aircraft plant, "A" frame carts, riding on Bassick casters, bring rocket turbo pump parts to the job. Top plastic shelf alone holds 100 small parts, larger components hang from sides of the cart on metal pegs.

Time saving here over separate handling of 150 components is tremendous. Parts carts on casters might cut costs for your plant, too.

THE
BASSICK COMPANY
BRIDGEPORT 5, CONN.
IN CANADA:
BELLEVILLE, ONT.



Bassick
A DIVISION OF



STEWART-WARNER CORPORATION

SAFETY SWITCHES STAND UP UNDER 100,000 AMPERE SHORT CIRCUIT TEST!

INDEPENDENT TESTING LAB RELEASES FINDINGS AFTER GRUELLING "TORTURE RACK" TESTS

Unprecedented tests have been completed on 30 through 600 ampere rated Square D safety switches equipped with high capacity current limiting fuses. During these tests, switches were closed on a short circuit system delivering up to 100,000 amperes (symmetrical—R.M.S.). In addition, the fault was applied on the closed switches. *All switches withstood the shocks without any sign of failure!*

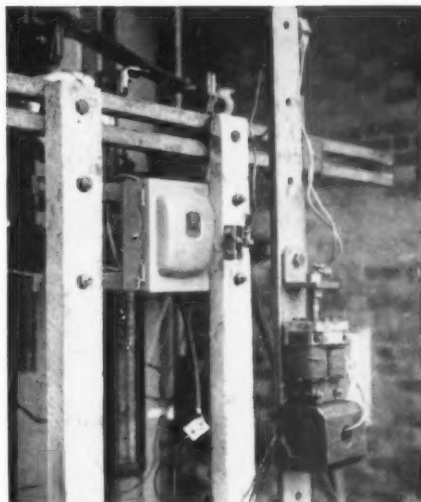
High Capacity Systems Demand Stamina

High capacity systems capable of delivering tremendous short circuits are becoming more and more prevalent with the growth of electrical loads. Network systems in metropolitan areas are a source of

such faults. Another, the heavy industrial areas, with a concentration of sub-stations and rotating machinery. Terrific stresses and heat generated by such faults are serious hazards to both personnel and equipment unless properly contained. That is why proven protection for switching service and feeder circuits is of major concern.

Square D Standard Switches Do The Job

These tests offer conclusive proof that standard Square D Type HD and Type ND switches, equipped with high capacity current limiting fuses, can be used on such systems without fear of failure. You pay no premium for the proven performance they offer. Why settle for less?



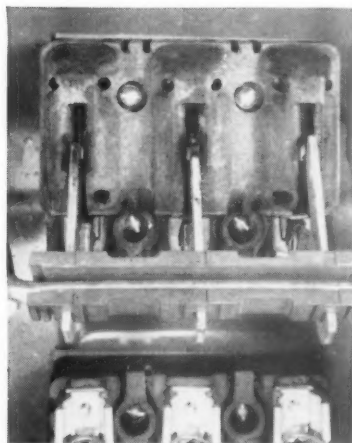
Square D switch on "torture rack" during test involving up to 100,000 ampere short circuit

SUMMARY TABLE • Extract from Report No. 5/NA R66—Sheet No. 5

Ampere Rating	Voltage Rating	Catalog Number	Average Symmetrical Prospective Current R.M.S.	Recovery Voltage R.M.S.	Maximum Total Arcing Time	Fuse Type
30	250	A85351	96,600	252	.0009	A2Y-30A
30	250	A85351	96,400	253	.0010	FRN-30A
30	600	A85341	107,000	590	.0020	A6Y-30A
30	600	A85341	106,000	601	.0027	FRS-30A
60	250	A86352	96,400	248	.0010	A2Y-60A
60	250	A86352	95,200	252	.0019	FRN-60A
60	600	A86342	106,000	605	.0011	A6Y-60A
60	600	A86342	108,000	598	.0020	FRS-60A
60	600	A86342	107,000	601	.0013	NAS-60A
100	250	A86353	95,200	253	.0009	A2Y-100A
100	600	A86343	108,000	604	.0014	A6Y-100A
200	250	A86354	95,200	253	.0037	A2Y-200A
200	600	A86344	107,000	602	.0011	A6Y-200A
400	250	A86355	95,900	252	.0039	A2Y-400A
400	600	A86345	106,000	611	.0050	A6Y-400A
600	250	A86356	94,500	251	.0062	A2Y-600A
600	600	A86346	107,000	601	.0062	A6Y-600A

Above • Extract of Nelson High Power Laboratory Report C/NA-66

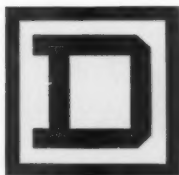
At left • No sign of failure in this switch interior after 100,000 ampere short circuit test



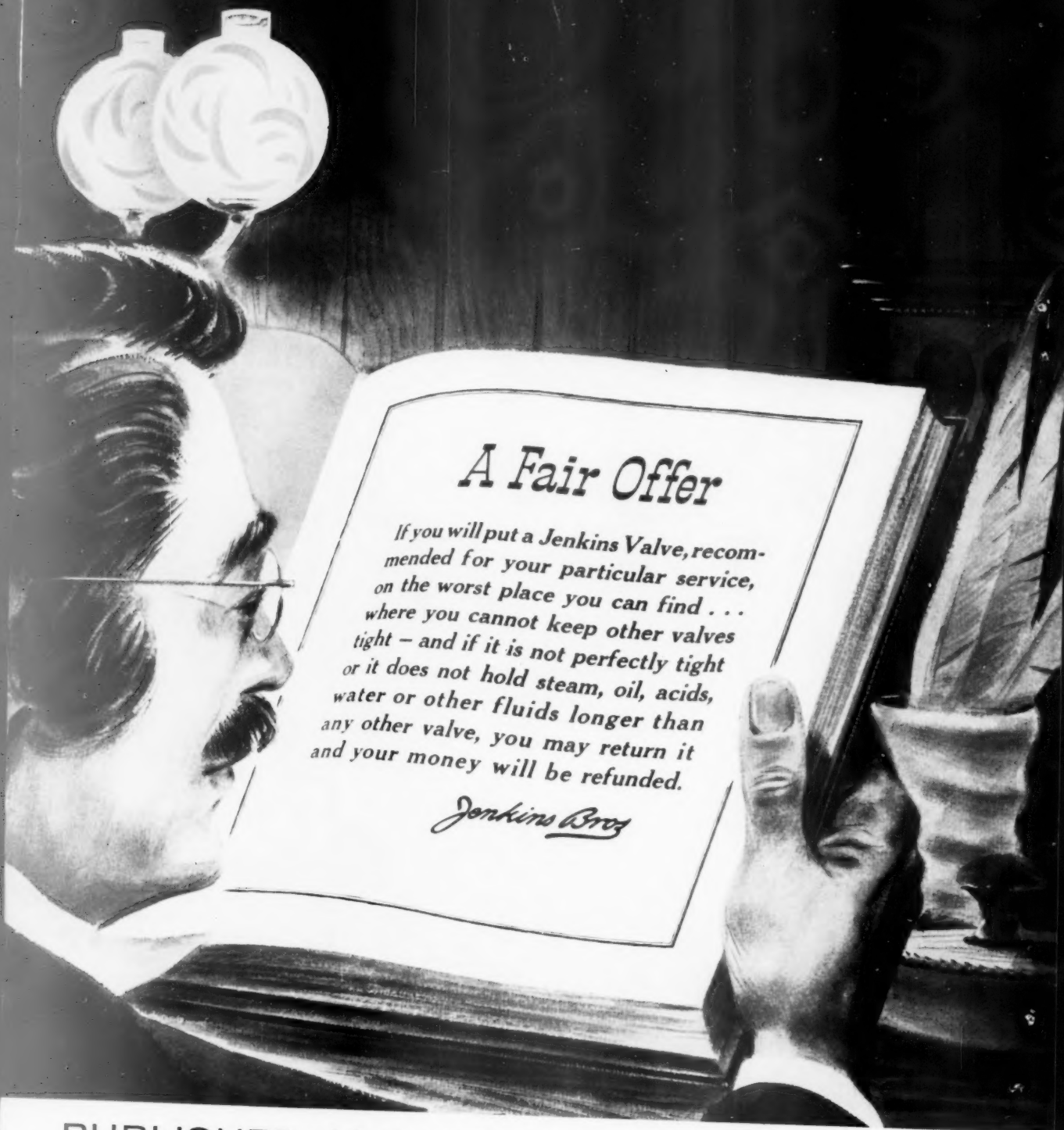
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